

25 June 2003

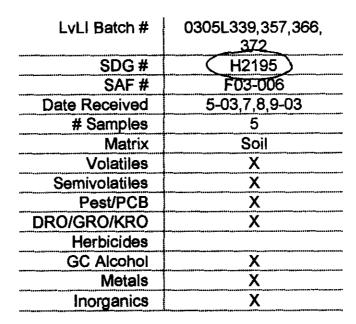
Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Ave. Richland, WA 99352

Subject: Contract No. 630

Analytical Data Package

Dear Mr. Trent:





The electronic data deliverable (EDD) will be emailed shortly. If you have any guestions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,

Lionville Laboratory Incorporated

Orlette S. Johnson Project Manager



EDMC

DATE RECEIVED: 05/03/03 LVL LOT # :0305L339

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP		ANALYSIS
						•	
B16W84	001	S	03 LV J056	04/30/03	N/A		05/17/03
B16W85	002	S	03L VJ05 5	04/30/03	N/A		05/16/03
B16W85	002 MS	s	03LVJ055	04/30/03	N/A		05/16/03
B16W85	002 MSD	S	03LVJ055	04/30/03	N/A	1	05/16/03
LAB QC:							
				•			
VBLKRT	MB1	S	03LVJ056	N/A	N/A		05/17/03
VBLKRT	MB1 BS	S	03LVJ056	N/A	N/A		05/17/03
VBLKSX	MB1	s	03LVJ055	N/A	N/A		05/16/03
VBLKSX	MB1 BS	S	03LVJ055	N/A	N/A		05/16/03



DATE RECEIVED: 05/07/03

LVL LOT # :0305L357

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W86	001	s	03LVJ055	05/05/03	N/A	05/16/03
LAB QC:	•					
VBLKSX VBLKSX	MB1 MB1 BS	s s	03LVJ055 03LVJ055	N/A N/A	N/A N/A	05/16/03 05/16/03

DATE RECEIVED: 05/08/03 LVL LOT # :0305L366 LVL # MTX PREP # COLLECTION EXTR/PREP CLIENT ID ANALYSIS 001 B16W87 S 03LVJ056 05/06/03 N/A 05/17/03 LAB QC: VBLKRT MB1 S 03LVJ056 N/A N/A05/17/03 VBLKRT MB1 BS S 03LVJ056 N/A N/A05/17/03

SO 03LVJ056 05/07/03 N/A

DATE RECEIVED: 05/09/03 LVL LOT #:0305L372

CLIENT ID LVL # MTX PREP # COLLECTION EXTR/PREP ANALYS

001

LAB QC:

B16W88

4						
VBLKRT	MB1	S	03LVJ056	N/A	N/A	05/17/03
VBLKRT	MB1 BS	S	03LVJ056	N/A	N/A	05/17/03

05/17/03



Client: TNU-HANFORD F03-006 LVL #: 0305L339, 0305L357,

0305L366, 0305L372

SDG/SAF # H2195/F03-006

W.O. #: 11343-606-001-9999-00 Date Received: 05-03,07,08,09-2003

GC/MS VOLATILE

Five (5) soil samples were collected on 04-30-2003 and 05-05,06,07-2003

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260B for TCL volatile target compounds on 05-16,17-2003.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. All samples were analyzed within holding time with the exception of samples associated with LVL # 0305L339. However, this volatile analysis was added later and performed at client request.
- 3. A non-target compound was detected in sample B16W84.
- 4. All surrogate recoveries were within EPA QC limits.
- 5. All matrix spike recoveries were within EPA QC limits.
- 6. All blank spike recoveries were within EPA QC limits.
- 7. The method blanks 03LVJ056-MB1 and 03LVJ055-MB1 contained the common laboratory contaminants Methylene Chloride and Acetone at levels less than the CRQL.
- 8. Internal standard area and retention time criteria were met.
- 9. A spectral search was conducted for the compound 2-Pentanone; however, this compound was not identified in the samples.
- 10. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

J. Michael Taylor

President

Lionville Laboratory Incorporated

som\group\data\voa\triu-hanford\0305-336,357,366,372.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 3 2 pages.

05

GLOSSARY

DATA QUALIFIERS

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 31.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference.
- NO = Result qualitatively confirmed but not able to quantify.
- A = Indicates that a TIC is a suspected aldol-condensation product.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TlCs), where the identification is based on a mass spectral library search. It is applied to all TlC results. For generic characterization of a TlC, such as chlorinated hydrocarbon, the N code is not used.
- X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.



GLOSSARY

ABBREVIATIONS

Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions BS and carried through all the steps in the method. Spike recoveries are reported.

Indicates blank spike duplicate. **BSD**

Indicates matrix spike. MS

MSD Indicates matrix spike duplicate.

Suffix added to sample number to indicate that results are from a diluted analysis. DL

NA Not Applicable.

DF Dilution Factor.

NR Not Required.

Indicates Spiked Compound. SP, Z



TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

- MP Missed Peak: manually added peak not found by automatic quan program.
- PA Peak Assignment: quan report was changed to reflect correct peak assignment.
- RI Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.



Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 06/05/03 12:29

	Cust ID:	B16W84	ı	B16W85	;	B16W85	İ	B16W85		VBLKRT		VBLKRT BS	တ
Sample	RFW#:	001		002	!	002 MS	;	002 MSD	1	03LVJ056-N	в1	03LVJ056-M	1 B1
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.0	0	1.0	4	1.0	4	1.0	6	1.0	0	1.0	0
	Units:	ug/K	(g	ug/F	ζg	ug/K	ίg	ug/K	(g	ug/F	(g	ug/K	ζg
	Foluene-d8	100	%	108	8	103	8	106	ક	98	%	101	
<u> </u>	orobenzene	109	૪	118	૪	118	ક	122	४	113	ક	111	ક
Recovery 1,2-Dichlore		126	%	123	%	125	8	128	ક્ષ	123	૪	121	૪
=======================================		=======	=fl==	=========	=f1==	=======================================		========	=f1	=========	=f1	=========	==fl
		11	U	11	U	11	U	11	U	10	Ŭ	10	U
Bromomethane		11	U	11	ប	11	U	11	U	10	Ū	10	U
Vinyl Chloride		11	U	11	U	11	Ŭ	11	U	10	U	10	Ū
Chloroethane		11	U	11	Ū	11	U	11	U	10	U	10	U
Methylene Chloride		6	В	5	JB	5	JB	5	JB	1	J	2	JB
Acetone		9	JB	15	В	12	В	11	JB	7	J	7	JB
Carbon Disulfide		6	บ	6	U	6	U	6	U	5	U	5	U
1,1-Dichloroethene		6	U	6	U	123	*	127	8	5	U	123	8
1,1-Dichloroethane		6	U	6	U	6	U	6	U	5	U	5	U
1,2-Dichloroethene (tota	al)	6	U	6	U	6	U	6	U	5	U	5	U
		6	U	6	U	6	U	6	U	5	U	5	U
1,2-Dichloroethane		6	U	6	U	6	U	6	U	5	U	5	U
2-Butanone		11	U	11	U	11	Ū	11	U	10	U	10	U
1,1,1-Trichloroethane_		6	Ū	6	U	6	U	6	U	5	U	5	U
Carbon Tetrachloride		6	U	6	U	6	U	6	U	5	Ū	. 5	Ŭ
Bromodichloromethane		6	U	6	Ü	6	U	6	U	5	Ū	5	U
1,2-Dichloropropane		6	U	6	U	6	U	6	U	5	U	5	U
cis-1,3-Dichloropropene		6	U	6	U	6	U	6	U	5	U	5	U
Trichloroethene		6	U	6	Ū	96	8	98	8	5	U	101	ક્ષ
Dibromochloromethane		6	U	6	U	6	U	6	U	5	U	5	U
1,1,2-Trichloroethane		6	U	6	U	6	U	6	U	5	Ų	5	U
Benzene		6	U	6	Ü	95	૪	98	ક્ષ	5	Ū	97	8
Trans-1,3-Dichloroprope	ne	6	U	6	Ü	6	U	6	U	5	U	5	Ų
Bromoform		6	U	6	U	6	U	6	U	5	U	5	U
4-Methyl-2-pentanone		11	Ū	11	U	11	U	11	U	10	Ü	10	บ
2-Hexanone		11	U	11	U	11	Ū	11	U	10	U	10	U
Tetrachloroethene		6	U	6	U	6	U	6	U	5	U	5	U
1,1,2,2-Tetrachloroetha	ne	6	U	.6	U	6	Ū	6	U	5	U	5	U
Toluene		6	Ū	6	U	106	8	113	%	5	U	104	ક
*= Outside of EPA CLP Q	C limits.												

RFW Batch Number: 0305L33	9 Clie	ent: TNUH	ANFOR	D F03-006	H21	95 Work C	rder	: 113436060	01	Page: 1h	2		
	Cust ID:	B16W84		B16W85		B16W85	;	B16W85		VBLKRT		VBLKRT BS	
	RFW#:	001		002		002 MS	;	002 MSD		03LVJ056-1	ß1	03LVJ056-N	B1
Chlorobenzene		6	U	6	U	103	ક	108	४	5	U	104	
Ethylbenzene		6	U	6	U	. 6	U	6	U	5	U	5	U
Styrene		6	U	6	U	6	U	6	U	5	U	5	Ū
Xylene (total)		6	U	6	U	6	U	6	U	5	U	5	U
N-butylbenzene		6	U	6	U	6	U	6	U	5	U	5	U
*= Outside of EPA CLP QC	limits.												

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 06/05/03 12:29

RFW Batch Number: 0305L339 Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 2a

Cust ID:	VBLKSX		VBLKSX BS		B16W86	;	B16W87		B16W88		+
Information Matrix: D.F.:	03LVJ055-M SOIL 1.0	0	03LVJ055-M SOIL 1.0	0	357-001 SOIL 0.96		366-001 SOIL 0.96		372-001 SOLID	_	
Units:	ug/K	g	ug/K	g	ug/K	g	ug/K	g	ug/K	.g	
Toluene-d8	100	ક્ષ	94	%	95	%	95	%	93	8	
Surrogate Bromofluorobenzene	102	*	96	ક્ષ	104	ક્ષ	107	왕	109	8	
Recovery 1,2-Dichloroethane-d4	94	४	92	૪	113	왐	121	૪	123	8	
	===±======	=f1	_========	=fl=		=fl=		=f1=	== =====	=f1=	======fl
Chloromethane	_ 10	U	10	U	10	U	10	U	11	U	
Bromomethane		Ŭ	10	U	10	U	10	U	11	U	
Vinyl Chloride	10	U	10	U	10	U	10	U	11	U	
Chloroethane		U	10	U	10	Ū	10	U	11	U	
Methylene Chloride	_ 2	J	2	JВ	5	Ū	4	JB	4	JB	
Acetone		J	6	JB	12	В	8	JB	7	JВ	
Carbon Disulfide		U	5	U	5	Ū	5	U	6	U	
1,1-Dichloroethene	_ 5	U	97	8	5	Ū	5	U	6	U	
1,1-Dichloroethane	- 5	ប	5	U	5	U	5	U	6	U	
1,2-Dichloroethene (total)		U	5	U	5	U	5	Ų	6	U	
Chloroform		U	5	Ū	5	U	5	U	6	Ü	
1,2-Dichloroethane		U	5	U	5	Ū	5	Ū	6	U	
2-Butanone		U	10	U	10	U	10	Ų	11	U	
1,1,1-Trichloroethane	_ 5	U	5	Ū	5	U	5	U	6	Ū	
Carbon Tetrachloride	 5	U	5	U	5	U	5	Ŭ	6	U	
Bromodichloromethane		U	5	Ū	5	U	5	U	6	U	
1,2-Dichloropropane	 5	Ū	5	U	5	U	5	U	6	U	
cis-1,3-Dichloropropene		U	5	U	5	U	5	Ü	6	Ū	
Trichloroethene		U	99	8	5	U	5	U	6	U	
Dibromochloromethane	 5	Ū	5	U	5	Ū	5	Ū	6	U	
1,1,2-Trichloroethane	_ 5	U	5	Ū	5	U	5	U	6	U	
Benzene	_ 5	U	91	ક	5	U	5	Ū	6	U	
Trans-1,3-Dichloropropene	-	U	5	Ü	5	U	5	Ū	6	U	
Bromoform		U	5	U	5	Ū	5	U	6	U	
4-Methyl-2-pentanone		U	10	U	10	U	10	U	11	Ū	
2-Hexanone	_ 10	_	10	Ū	10	Ū	10	Ū	11	Ū	
Tetrachloroethene	5	Ū	5	Ū	5	Ū	5	Ū	6	Ū	
1,1,2,2-Tetrachloroethane		-	_	-	5	Ü	5	Ü	6	Ü	
Toluene		_	90	8	5	U	5	U	6	Ū	

^{*=} Outside of EPA CLP QC limits.

RFW Batch Number: 0305L33	9 <u>C</u>	lient: TNU	<u>ianf</u>	ORD F03-006	<u>H2</u>	195 Work C	rdei	: 11343 <u>606</u> 0	001	Page: 2b	<u>)</u>	•
	Cust ID:	VBLKSX		VBLKSX BS		B16W86	i	B16W87		B16W88	3	12
	RFW#:	03LVJ055-M	œ1	03LVJ055-1	Œ1	357-001		366-001		372-001		
Chlorobenzene		5	U	94	ક	5	U	5	U	6	U	i
Ethylbenzene		5	Ū	5	U	5	U	5	U	6	U	
Styrene		5	U	5	U	5	U	5	U	6	U	ſ
Xylene (total)		5	U	5	U	5	U	5	U	6	U	1
N-butylbenzene *= Outside of EPA CLP QC	limits.	5 5	U	5	Ū	5	U	5	U	6	U	

1E VOLATILE ORGANICS ANALYSIS SHEET

UNKNOWN

EPA SAMPLE NO.

TENTATIVELY IDENTIFIED COMPOUNDS	TO 1 CHO 4
Lab Name: <u>Lionville Labs, Inc.</u> Contract: <u>11343</u>	B16W84 606001
Lab Code: <u>Lionvi</u> Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) <u>SQIL</u>	Lab Sample ID: 0305L339-001
Sample wt/vol: 5.00 (g/mL) G	Lab File ID: <u>j051707</u>
Level: (low/med) <u>LOW</u>	Date Received: 05/03/03
Moisture: not dec8	Date Analyzed: 05/17/03
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 1.00
	NTRATION UNITS: or ug/Kg) <u>ug/Kg</u>
CAS NUMBER COMPOUND NAME	RT EST. CONC. Q

8.352 5

CAS NUMBER

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA	SAMPLE	NO.
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| RT | EST. CONC. | Q

IEMIAIIVEELI IDEMIIFIED COM	B16W85
Lab Name: Lionville Labs, Inc. Contract:	·
Lab Code: <u>Lionvi</u> Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>0305L339-002</u>
Sample wt/vol: 4.80 (g/mL) G	Lab File ID:
Level: (low/med) <u>LOW</u>	Date Received: 05/03/03
% Moisture: not dec7	Date Analyzed: 05/16/03
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 1.04
Number TICs found: <u>0</u>	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

COMPOUND NAME

1E VOLATILE ORGANICS ANALYSIS SHEET

B16W86		
l	 	

EPA SAMPLE NO.

TENTATIVELY IDENTIFIED COMPOUNDS	In a Croc
Lab Name: Lionville Labs, Inc. Contract: 1134;	B16W86
Lab Code: Lionvi Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: 0305L357-001
Sample wt/vol: 5.20 (g/mL) G	Lab File ID:
Level: (low/med) <u>LOW</u>	Date Received: 05/07/03
Moisture: not dec3	Date Analyzed: 05/16/03
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 0.962
	entration units: Lor ug/Kg) <u>ug/Kg</u>
CAS NUMBER COMPOUND NAME	RT EST. CONC. Q
1.	

VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA	SAMPLE	NO.	
			_ _i
BIGW	9.7		1

TENTATIVELY IDENTIFIED COMPOUNDS	<u>:</u>
Lab Name: <u>Lionville Labs, Inc.</u> Contract: <u>1134</u>	B16W87
Lab Code: <u>Lionvi</u> Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: 0305L366-001
Sample wt/vol: 5.20 (g/mL) G	Lab File ID: j051711
Level: (low/med) <u>LOW</u>	Date Received: 05/08/03
% Moisture: not dec3	Date Analyzed: 05/17/03
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 0.962
	ENTRATION UNITS: L or ug/Kg) <u>ug/Kg</u>

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	 Q
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VOLATILE ORGANICS ANALYSIS SHEET

EPA SAMPLE NO.	
 B16W88	
	1

TENTATIVELY IDENTIFIED COMPOUNDS	
Lab Name: Lionville Labs, Inc. Contract: 11343	B16W88
Lab Code: Lionvi Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) <u>SOLID</u>	Lab Sample ID: 0305L372-001
Sample wt/vol: 4.60 (g/mL) G	Lab File ID: <u>j051712</u>
Level: (low/med) <u>LOW</u>	Date Received: <u>05/09/03</u>
% Moisture: not dec1	Date Analyzed: 05/17/03
Column: (pack/cap) CAP	Dilution Factor: 1.09
	NTRATION UNITS: or ug/Kg) ug/Kg
CAS NUMBER COMPOUND NAME	DE FOR COMO

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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	1.				i i
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VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA	SAMPLE	NO.
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TENTATIVELY IDENTIFIED COMPOUNI	;
Lab Name: <u>Lionville Labs, Inc.</u> Contract: <u>113</u>	VBLKRT 343606001
Lab Code: Lionvi Case No.:	SAS No.: SDG No.:
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: 03LVJ056-MB1
Sample wt/vol: 5.00 (g/mL) G	Lab File ID: <u>j051706</u>
Level: (low/med) <u>LOW</u>	Date Received: 05/17/03
% Moisture: not dec0	Date Analyzed: 05/17/03
Column: (pack/cap) <u>CAP</u>	Dilution Factor: 1.00
	NCENTRATION UNITS: g/L or ug/Kg) <u>ug/Kg</u>
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	CAS NUMBER	COMPOUND NAME	 RT	EST. CONC.	 Q
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VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

	
VBLKSX	

EPA SAMPLE NO.

Lab Name: Lionville Labs, Inc. Contract: 11343606001	Lab	Name:	Lionville	Labs,	Inc.	Contract:	11343606001	
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Lab	Code:	Lionvi	Case No.:	SAS No.:	SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 03LVJ055-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: 1051605

Level: (low/med) <u>LOW</u> Date Received: 05/16/03

% Moisture: not dec. 0 Date Analyzed: 05/16/03

Column: (pack/cap) CAP Dilution Factor: 1.00

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) ug/Kq

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	 Ω
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1.		İ	İ	ĺ

Lionville	Labora	tory Us	e Only
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Custody Transfer Record/Lab Work Request Page ___ of ___

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03056339

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client	كال	Refrig	erator #	<u></u>	<u> </u>	<u> </u>					_		2	1=				읬				
Est. Final Pro	. Samp	ling Date		· · · · ·	<u> </u>	_ #/Tvo	Container	Liquid	<u> </u>	ļ <u>.</u>								<u> </u>			++	
Project #		(1343-606.	001-99	199-00		_	· · · · · · · · · · · · · · · · · · ·	Solid	<u> </u>	<u> </u>	 _						lag	leq	lca			\dashv
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FH-Central Pi	ateau Project	C	HAIN OF CUST	CODY/S	AMPLI	E ANALY	YSIS	REQUEST	1	1.05	-000 07	<u> </u>	
Collector Johansen/Pope/Pfister			nny Contact Hulstrom	Telepho 373-3				Project Coordin TRENT, SJ	lator	Price Code	8N		rnaround
Project Designation 200-PW-2/200-PW-4 O	U - Borehole Soil Sampling		ing Location -A-37 (C4106); (72.5'-75	5)				SAF No. F03-006		Air Quality		45	Days
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LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

: LIENT: TOU Hondord

urchase Order/Project:

DATE: 5.3.03

AF#/ SOW# / Release #: F03.006

_aboratory SDG #:

03051339 NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping D/Yes □ No D N/A D see Comment # container intact, signed and dated? 2. Outside of coolers or shipping containers are □ No DINA ☐ see Comment # free from damage? Airbill # recorded? **₩**)Yes □ No D N/A ☐ see Comment # All expected paperwork received (coc and D No other client specific: historical data, D N/A D see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) 5. Sample containers are intact? Ò∕Yes D Νο D N/A ☐ see Comment # Custody seals on sample containers intact, D No DINA sec Comment # signed and dated? All samples on coc received? □ No DINA ☐ see Comment # Yes D No All sample label information matches coc? D N/A · □ see Comment # 8. Laboratory QC samples designated on coc? ☐ Yes D No DN/A D see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance V Yes □ No D N/A □ see Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are □ Yes D No N/A ☐ see Comment # affixed to coc? **X**DYes □ No DNA 12. coc signed and dated? Disce Comment # 13. coc will be faxed or emailed to client? TYes. □ No DNA see Comment # 14. Project Manager/Client contacted E N/A D Yes □ No 🗖 see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC 01-038/0.6°

Laboratory Sample Custodian:

Laboratory Project Manager:

23

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

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0305L357

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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F - Fish	 	 			{					 	1	 					$\neg \uparrow$				_			
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Special Instruc	tions;	SAF #	F03 -0	04		5-1	4-0)	1. <u>fen</u> (heri	<u>D.</u>	<u> 4</u> 0.	ate:	<u> </u>	-16-0	3		-					moer Res	 -	and water
1								2. Add	A. A.	3	Ba I	آ م	3. C	l, Cr. 0	2. H	. / /	1):	mples Shippe	d 🚣	or .	1)	Presen	t on O	uter
-		۱ ۵			3. Pb. 5	h 50 /	100	· • /	CIA	W,	NO.	00	504		nd Del bill # _				ackage Unbrok					
'	भ्यप	Lac for	Ľ															720		ackage				
Í						4. <u>INH31</u>			LFH,	<u>O</u> 8	(3 F,	V GH C 3		PU .	Ŀ	Ambier	•		3)	Presen	nt on Sa or (ץ)			
					5. ODR	2 OCV	હ								Receiv ndition			41) Unbrok	_				
					6									4)	Sample	95		S	ample (Y) or	N			
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FH-Central	Plateau Pro	ject	CI	IAIN OF CUST	ODY/S	AMPLI	E ANAL	YSIS	REQUEST		F	3-006-69	Page 1	of 1
Collector Johansen/Pope/Pfiste	er			ny Contact Juistrom	Telephor			_	Project Coordi TRENT, SJ	nator	Price Code	8N	Data Tur	naround
Project Designation 200-PW-2/200-PW-4	·····	Soil Sampling		ing Location A-37 (C4106); (147.5'-1	50')	•			SAF No. F03-006		Air Qualit	у 🗆	45 I	Days 15
Ice Chest No	PC-O		Field I	Logbook No. F-N-3361		COA 117504ES	S10		Method of Ship Federal Expre					
Shipped To PBERLINE SERVICE	RECKA	1 Sec		Property No.	7030	222			Bill of Lading/	Air Bill l	No. 5E	E OSF	~	
POSSIBLE SAMPLI				Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None					
_	TO BIG W			Type of Container	aG	aG	aG	aG	19/					
Special Handling a		[Y • c		No. of Container(s)	1	1	1	1	1					
			'	Volume	120mL	60mL	120mL	60m	L 60mL					
<u> </u>				<u> </u>	Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Speci Instruct	al/					
	S					w/.	112/17							
				·	E1112- 4 1 -	TARTE OF SUN S		A7				TIETO:	}n omzolika, o tom	
Sample No.	1	Matrix *	Sample Date	Sample Time		 	X					Qu (O	- 244	20x
B16W86		SOIL	5/5/3	0900	1	+	+~-	∤—		 		House	- B160	200
						+			.					
					<u>l</u>	<u> </u>		<u> </u>	200		(/21/4)			Matrix *
CHAIN OF POS Relinquished By/Removed		Date/Time	Sign/Prin	red In D	ate/Time	**	CIAL INSTI	s to achic	ONS We a detection limit sel range compounds	of 50,0-pG	/22/03 Vg for Carbon 1	4. ** The laborat	ory is to	S=Soil
THAY DUCKTOLING THE	MUM 21510	13 1315		A 5-5-03	1315									SE=Sediment SO=Solid
Retinquished By/Removed		Date/Time 1000	Received By/Sto	red in 12	ate/Time /		; Nickel 63, Ne		m-89,90 — Total Sr, 137 — A.S.A.	4/2	/	1-232}, Cal boil-1	4, lodine-	S)=Skudge W = Water O=Oil
Relinquished By/Removed	d From I	Date/Time 1000	Received By/Sto	red In D	ate/Time		Do			7.	, ,			A=Air DS=Drum Solids
Relinquished By/Removed	d From	5-6-63 Date/Time	Received By/Sto	red in D	ate/Time			sample	s from the 3728		2			DL=Drum Liquids T=Tissuc WI=Wipe
Retinguished By/Removed	5	7:03 /10:10 Date/Time	Received By/Sto		ate/Time	2	Ref #	<u>-</u> on _2	16 103	-				L=Liquid V=Vegetation X=Other
		Date/Time	Received By/Sto		ate/Time									}
Relinquished By/Removed	d From	Jate Time	Received by/Sic	aca iii										<u> </u>
LABORATORY SECTION	Received By				т	ïtle							Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method						Disp	osed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

:LIENT: TNU Hanford

urchase Order/Project:

DATE: 5.7.03

AF#)SOW# / Release #: FO 3-00L

,aboratory SDG-#:

,aborate	ory SDG #: 0305L351				
VOTE:	ALL ENTRIES MARKED "NO" MUST BE	EXPLAINED II	THE COMM	ENT SECTION	
1,	Custody seals on coolers or shipping container intact, signed and dated?	XY es	. □No	□ N/A	see Comment #
2.	Outside of coolers or shipping containers are free from damage?	D Yes	□ No	□ N/A	☐ see Comment #
3.	Airbill # recorded?	Yes	□ No	□ N/A	□ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	(Yes	□ No	□ N/A	🗅 see Comment #
5.	Sample containers are intact?	Yes	□ N ₀	□ N/A	□ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	D Yes	□ No	□ N/A	D see Comment N
7.	All samples on coc received?	Y es	□ No	DNA	· D see Comment #
8.	All sample label information matches coc?	Yes Yes	D No	□ N/A·	See Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	TY es	□ No	□ N/A	See Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	EXY.es	□ No	□ N/A	□ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	D Yes	□ No	O N/A	D see Comment #
12.	coc signed and dated?	Yes	□N ₀	D N/A	D see Comment#
13.	coc will be faxed or emailed to client?	TYes.	□ N ₀	DN/A	See Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	. □ No	WHIA	☐ see Comment #
				4	

Cooler # / temp (°C) and Comments:

ECC-01-063 /2.3"

Laboratory Sample Custodian:

Laboratory Project Manager:

Denien

(6) VOA, UNA, MITCH, FRM, IMPULL, DIG, NICH

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

03051366

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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Client T	Client TNU-Hamford F03-006																		2-		- 1		→ Ì	
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Project Conta	ct/Phoi	ne #	· .	·			Volume		Liquid	<u> </u>						}						}	_	-
Lionville Labo	ratory	Project Manager	are.	the lahr	Am	2			Solid				<u> </u>						150	100	190			
OC SPEC		Del 5イン	TAT	3000			Preserv	atives										<u> </u>	=	_				
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Date Rec'd S	S-8-6	<u> </u>	ate Due _		<u>~</u>		REQUE			۸Ö۷	BNA	Pest/ PCB	Herb			Ì	Metal	S	3 P	22	200		i	1
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MATRIX CODES:		1			0	IC		Date	Time										_	4	Z			
S - Soil	Lab ID	Ciler	nt 1D/Descrij	otion		sen /)	Matrix	Collected]]]]		ļ		Iche	INONI	7066A			
SE - Sediment SO - Solid					No.	MSD		<u> </u>]	}			'		}			#C	ដ	4			
SL - Sludge W - Water		1811 . 207	 _	 _	V V	m3U	<u> </u>	5.603	1245	1				 					×	ኢ	X			
O - Oil A - Air	00 r	B160981	<u> </u>		7	7.45	<u> </u>	3.603	<u>0773</u>	├──	-			 	-			-		-			r	
DS - Drum Solids	<u> </u>				┼-	1-1		 		 	 	-				- 		<u> </u>			 			
DL - Drum	 -	 						 -	 	├	}	-		 								-	. 1	
Liquids L - EP/TCLP	<u> </u>	 			├			 	 	├ ─	 			 					 	-	-	-	<u>.</u>	
Leachate WI - Wipe	<u> </u>	 						<u> </u>	 _	}	 	ļ	 	 				<u> </u>	}—			-	-	
X - Other F - Fish	<u> </u>	<u> </u>			<u> </u>	 		<u> </u>	 		 -	 		 -	 			 		ļ	 	ļ		
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Special Instruc	tions:	SAF #	F03	-006		DATE	REVISIO	NS:	. / !	``	7 1		, .				T		Lionvi	lle Lab	oratory	Use C	n ly	
		JAI -						1. Per C									Sa	amples Shippe	were:/	<u></u>	Ta	mper Res	sistant Se	ead was:
			_					2. AU:									1) H	Shippe and De	ed 🔽 Hvered	_ or		Presen		
Bate	h (2 C Fr L33	39, 357,	366,372				3. M: P	b. 56.5	12	c : c(FLAK	03. <i>W</i>	20	14.5	04	Ai	irbill#_			. 2)	Unbrol	(eg on	Outer
	. • • •				4 INHIA										107			5 P:	ackage	€ n or	N			
							-		·· , V	, <u>, , ,,,</u>	بالمث		- 7 01 0		Ambie Receir			3)	Preser	nton Si				
								5. ODR	n OF	KO_			-					ondition			4	Unbro	μen on	
								6									()	Sampl	les Preser	ved	S	ample (Y)or	N
Relinquishe	d }	Received	Date	Time F		ished		Received		Pala A	Ti	me	Dis	crepand	ies Bet	ween	1.1	roperly	0	y N		OC Rec pon Sa	m <u>ple</u> R	ec't
by		D A S	 	├── ┤├─	by ORIGINA Time Samples Labels and COC Record? Y or NOTES:										, -,	Recei		hin			(Y)	or N		
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FH-Central Plateau	u Project	Cl	HAIN OF CUST	ODY/S	AMPL	E ANAL	YSIS	REQUES	r	F03	-006-70	Page 1	of 1
Collector Johansen/Pope/Pfister		Compi	any Contact Hulstrom	Telepho 373-3	ne No.			Project Coord TRENT, SJ		Price Code	8N	Data Tur	l l
Project Designation 200-PW-2/200-PW-4 OU - Bo	rehole Soil Sampling		ling Location -A-37 (C4106); (197.5'-2	200')				SAF No. F03-006		Air Quality		45 1	Days
Ice Chest No. ERC_	99.022	l HN	Logbook No. F-N-3361		COA 117504	ES10		Method of Shi Federal Exp					2
Shipped To EBERLINE SERVICES (Form	RECKA nerly TMA) ASP 4	21/03 Offsite	e Property No.	A03E	2	2>		Bill of Lading	/Air Bill	No. SE	E 63	pc	· .
POSSIBLE SAMPLE HAZAI	RDS/REMARKS	7	Preservation	Cool 4C	Cool 40	Cool 4C	Not	ne None					
Special Handling and/or St	BILWDO		Type of Container	aG	aG	aG	aC				<u> </u>		
C C	00140		No. of Container(s)	1	1	1	1 1		<u> </u>		<u> </u>	<u> </u>	
			Volume	120mL	60mL	120mL	60u	nL 60mL					
	SAMPLE ANALY	'SIS		Chromium Hex - 7196	NO2/NO3 353.2		See item Spec Instruc	ial /					
							AX	alv		Tieto:			
Sample No.	Matrix *	Sample Date			11 11 11	. 380		13.00					· · · · · · · · · · · · · · · · · · ·
B16W87	SOIL	5/6/63	0945	1 7	 	1	¥—		 	Blows	}	 	
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Relinquished By/Removed From A 3724 Relinquished By/Removed From From From From From From From From	Date/Time Date/Time Date/Time / Ow Date/Time Ow		10 0c) T	eport both kerose 1) Technetium-9 29; Niekel 63; N Personnel no	ne and die 9; Strontiu optunium t availab	sel range compound m-89,90 — Total Si 237	is from WI Is from WI Isotopic 1	Thorium {Thorium-			Matrix * S=Soit SE=Sediment SO=Solid SI=Studge W = Water O=Oit A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W9=Wipe L=Liquid V=Vegetation X=Other		
LABORATORY Received By	·				Title .	<u> </u>				<u> </u>	 	Date/Time	<u></u>
SECTION FINAL SAMPLE Disposal M DISPOSITION	ethod	<u></u>				Dis	posed By	<u> </u>			<u> </u>	Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

ILIENT: TNU Handord

urchase Order/Project:

DATE: 5.8.03

AF# SOW# / Release #: FO3 - OOL

aboratory SDG #:

OTT	ALL ENTRIES MARKED "NO" MUST BE		THE COMM	ENT CECTION	
		12/Yes	<u> </u>	<u>.</u>	
1.	Custody seals on coolers or shipping container intact, signed and dated?	19165	. □No	□ N/A	see Comment #
	COURTIEL DIESER SISTER BY ONIEGE.			•	•
2.	Outside of coolers or shipping containers are	D-Yes	□No	DNA	See Comment #
	free from damage?	7.4	210	DIVA	C) see Comment w
3.	Airbill # recorded?	Yes .	□ No	D N/A	D see Comment#
	All expected paperwork received (coc and	/ /			
4.	other client specific: historical data	D. Yes	□ N ₀	DNA	D see Comment #
	alpha/beta or other screening data as	/.			
	applicable)? (paperwork sealed in plastic				
•	bag and taped to inside lid)				
	Sample containers are intact?		•		· •
5.	Sample conditions are macri	D'Yes	□ No .	D N/A	☐ see Comment #
6.	Custody seals on sample containers intact,	Ýes	DNo.	D N/A	D see Comment #
	signed and dated?				ı
7.	All samples on coc received?	Dyes	D No	□ N/A	· D see Comment #
	•			_ , ,,,	
8.	All sample label information matches coc?	27 Yes	D No	D N/A·	see Comment #
9	Laboratory QC samples designated on coc?	VD/Yes	□ No	D N/A	. Dises Comment #
	(QC stickers placed on bottles?)			C/WR	LI SEE COMMISCIA W
10	Shipment meets LvLl Sample Acceptance	Ì			
10.	Policy? (identify all bottles not within	∑ Yes	□ No	D N/A	☐ see Comment #
	policy. See reverse side for policy)				
	• • •				
11.	Where applicable, bar code labels are	D Yes	□ No	AWE	D see Comment #
	affixed to coc?				
12.	coc signed and dated?	D'Yes	□ No	□ N/A	D see Comment it
13.	coc will be faxed or emailed to client?	Ľ Yes∗	□ No	D N/A	D see Comment
1 4	Project Manager/Client contacted	4			
14.	concerning discrepancies? (name/date)	□ Yes	□ No	12 N/A	□ see Comment #
	concerning oper-pareness (name/date)				

Cooler # / temp (°C) and Comments:

ERC 99-022 /2.0"

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory Use Only

(6) Vold. BNA, MCUS-rom. Install, 1914, 1944. Custody Transfer Record/Lab Work Request Page 1 of 1

03054372

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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Client TNU)H	lanford	F03 -	-006]	Refriger	ator#											2		<u>-1</u>		- 	
Est. Final Proj	Samr	ling Date					#/Type Container		Liquid										, ,				++	
Project #		11343-60	6.001-	9999-00					Solid			<u> </u>							A6	146	AG			
Project Conta		· ·					Volume		Liquid					ļ.—.ļ		}	_							
Lionville Labo	ratory	Project Manager	·	0.2					Solid		<u> </u>								120	60	120		-	
OC SPEC		Del 50	TAT	30 de	1		Preserv	atives	<u> </u>									-		0.				
				6-16-03			ANALY	SES				ANIC			1	ŀ	INO	HG	hom	700	0,/8	1		
Date Rec'd	5-9	1-03	Date Due	6-8-0)	<u>"</u>		REQUE			VOA	BNA	Pest/ PCB	Her.	1 1			Metal	S	Jé*	رورز	Great Great		·	
		·			T						L		T	1	Lionvi	le Lat					1			
MATRIX CODES:					Mat	C		_													٦			
S - Soil	Lab 1D	Cile	nt ID/Descripti	on	Cho (#		Matrix	Date Collected	Time Collected	[[[[- [[cee	ZNCNI	હ	- [1	
SE - Sediment SO - Solid	}				110	****		} }	1			}		}	<u> </u>	}	ł	}	र्जे ।	3	7.0 GG	1	. (
St Sludge W - Water	 -	8 11 11 00			MS	MSD	50	5-703	1050		 								1	•	•			
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Solids DL - Drum	 	<u> </u>			}	}	 	 		 -	 			 	-	}				 		├╼}	+	
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Leachate WI - Wipe		<u> </u>			<u> </u>	<u> </u>	ļ		<u> </u>	L-	 	<u> </u>		 					ļ	<u> </u>	<u> </u>			<u> </u>
X - Other F - Fish	}							<u> </u>		<u>L</u> _	$oxed{oxed}$	<u> </u>	L	↓					ļ	<u> </u>	<u> </u>		 	<u> </u>
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Special Instruc	tions:	SAF #	F05-0	N C				1. Per									. 52	mples				mper Res		al was:
								2 Add	Aq, As	β,	Ba_B	e. B	Cd	Cr. (Cu Hr	N: 6	% 1)	Shippe	ad 🚄		1)	Presen	tog Ou	uter
B	atch	QC For 1339	1,357,36	6,372				3. Sb. S										and Del	<u> 500</u>	<u> </u>		ackage Unbrok	_	
1									•								⁻ _	661			P	ckage	O or	N
							4. TAHI		•	44	. 06	is x	. 000	<u> </u>	urup		Ambie	_		3)	Presen	nt on Sa		
						5 ODRO	0 6 R	0								Receive Ondition			41	Unbrok	_	. N		
						6									4)	Sampl	es			ample (N		
Relinquishe	d	Received		Time R	elinqu	ished		Received		Date		me	Dis	crepanc	ies Beh	ween	Properly Preserved COC en Or N Upor				OC Rec			
by		by	Date	Time ''	by			by	ORIG	ΝÃ	<u>ll "</u>		Sar	noles L	abels ar	nd				POH SAN	пріе не	r N		
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FH-Central Plate	eau Project	CI	IAIN OF CUST	ODY/S	AMPLI	E ANALY	YSIS	REQUEST	`	F03	-006-71	Page 1	of <u>l</u>	
Collector Johansen/Pope/Pfister			ny Contact Hulstrom	Telepho: 373-3	ne No.	Project Coordinator TRENT, SJ				Trice code Off			Turnaround	
Project Designation 200-PW-2/200-PW-4 OU -	Borehole Soil Sampling		Sampling Location 216-A-37 (C4106); (237.5'-240')					SAF No. F03-006		Air Quality 🗌			45 Days	
Ice Chest No. ERC	-01-040	i HNI	Logbook No. F-N-3361		COA 117504E	S10		Method of Ship Federal Expre					(7)	
Shipped To EBERLINE SERVICES (F	RECEA OFFICE TMA) ALL 4	Offsite	e Property No.					Bill of Lading/	Air Bill	No. See	OSA	ت		
POSSIBLE SAMPLE HAZ	ARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None	, 					
Special Handling and/or	Storage		Type of Container	aG l	aG	aG.	aG	a				 		
			No. of Container(s) Volume	120mL	60mL	120mL	60m	ıL 60mL	 	-	 -			
	SAMPLE ANAL	YSIS	1 volume	Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Speci Instruc	al /		Tie	10:			
Sample No.	Matrix *	Sample Date	Sample Time											
B16W88	SOIL	5-7-03	1050	X	X	X	<u> </u>			BIL	MDO			
<u></u>					 	 	 							
							-						-	
CHAIN OF POSSESS	SION	Sign/Pri	nt Names		SPI	ECIAL INSTI	RUCTI	ONS	SI	4/22/03		<u> </u>	Matrix *	
Relinquished By/Removed From 3004 CC Julian Relinquished By/Removed From 372 B C 1 B Relinquished By/Removed From Relinquished By/Removed From FEDEX	Parte/Time $ \begin{array}{c c} \hline Parte/Time \\ \hline Date/Time \\ \hline Date/Time \\ \hline S/8/\overline{c}3 083$	Received By/Sto Received By/Sto Received By/Sto Received By/Sto Received By/Sto Received By/Sto	ored in Dord in Dord in Dord I	ate/Time ate/Time ate/Time ate/Time -9-03- ate/Time	(40 representation of the second of the seco	The laboratory is ort both kerosen	s to achie te and die , Strontium- ptunium- availabl ples fro	eve a detection limit sel range compound m-89,90 Total Sr, 237 157	from W	Ci/g for Carbon=14. TPH-D analysis.	232}; Carbon-	T 4, lod ine-	S=Soil SE=Sedipent SO=Solid SI=Shadge W = Water O=Oil A=Air DS=Draws Solids DL=Draws Liquids T=Tissue WL=Wigold V=Vegetation X=Other	
LABORATORY Received	d By		•		Title							Date/Time		
<u> </u>	al Method	<u> </u>				Disp	posed By					Date/Time		

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

ILIENT: THU HANGORD

'urchase Order/Project:

DATE: 5-9-03

AF# / SOW# / Release #: (=03-006

Laboratory SDG#: 03052372

VOTE:	ALL ENTRIES MARKED "NO" MUST BE		THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	ØYes .	. □No .	□ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	ØYes	□ No	D N/A	See Comment #
3.	Airbill # recorded?	Tares	□ No	D N/A	See Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	₩ Yes	Ð No	□ N/A	See Comment #
5.	Sample containers are intact?	ĕYes	D No	D N/A	□ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	Ø Ŷes	□ No.	D N/A	☐ see Comment #
7.	All samples on coc received?	12 Yes	D No	□ N/A	☐ see Comment #
8.	All sample label information matches coc?	☑ Yes	D No	□ N/A·	D see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	Ø Yes	D No	AINO	See Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	⊠Yes	□ No	D N/A	🗅 sec Comment #
11.	Where applicable, bar code labels are affixed to coc?	D Yes	□ No	BYNA	See Comment #
12.	coc signed and dated?	D Yes	□ No	D N/A	D see Comment #
13.	coc will be faxed or emailed to client?	Yes.	□ No	D N/A	D see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	, D No	W N/A	D see Comment #

Cooler # / temp (°C) and Comments:

1.5° ERC 01 -040

Laboratory Sample Custodian:

Laboratory Project Manager:

Cal thing

RFW LOT # :0305L339

CLIENT ID	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
B16W84	001	s	03LE0575	04/30/03	05/03/03	05/14/03	06/08/03
B16W85	002	s	03LE0575	04/30/03	05/03/03	05/14/03	06/08/03
B16W85	002 MS	s	03LE0575	04/30/03	05/03/03	05/14/03	06/09/03
B16W85	002 MSD	S	03LE0575	04/30/03	05/03/03	05/14/03	06/09/03
LAB QC:							
SBLKTK	MB1	s	03LE0575	N/A	N/A	05/14/03	06/07/03
SBLKTK	MB1 BS	S	03LE0575	N/A	N/A	05/14/03	06/07/03



DATE RECEIVED: 05/07/03

LVL LOT # :0305L357

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W86	001	s	03LE0575	05/05/03	05/14/03	06/09/03
LAB QC:						
SBLKTK SBLKTK	MB1 MB1 BS	s s	03LE0575 03LE0575	N/A N/A	05/14/03 05/14/03	06/07/03 06/07/03

DATE RECEIVED:	05/08/03		LVL LOT # :0305							
CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS				
 :										
B16W87	001	S	03LE0575	05/06/03	05/14/03	06/09/03				
LAB QC:										
SBLKTK	MB1	S	03LE0575	N/A	05/14/03	06/07/03				
SBLKTK	MB1 BS	S	03LE0575	N/A	05/14/03	06/07/03				

DATE RECEIVED: 05/09/03 LVL LOT # :0305L372 CLIENT ID LVL # MTX PREP # COLLECTION EXTR/PREP ANALYSIS 001 SO 03LE0575 05/07/03 05/14/03 06/09/03 B16W88 LAB QC: MB1 S 03LE0575 N/A 05/14/03 06/07/03 SBLKTK S 03LE0575 N/A 05/14/03 06/07/03

MB1 BS

SBLKTK



Client: TNU-HANFORD F03-006 LVL #: 0305L339, 0305L357, 0305L366, 0305L372 W.O. #: 11343-606-001-9999-00 **Date Received:** 05-03,07,08,09-2003 **SDG/SAF** # H2195/F03-006

SEMIVOLATILE

Five (5) soil/solid samples were collected on 04-30-2003 and 05-05,06,07-2003.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on method 3550 on 05-14-2003 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 06-07,08,09-2003.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. Samples were extracted and analyzed within required holding time.
- 3. Non-target compounds were detected in the samples.
- 4. All surrogate recoveries were within EPA QC limits.
- 5. All matrix spike recoveries were within EPA QC limits.
- 6. All blank spike recoveries were within EPA QC limits.
- 7. Internal standard area and retention time criteria were met.
- 8. Manual integrations are performed according to OP 21-06A-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

J. Michael Taylor

President

Lionville Laboratory Incorporated

som\gorup\data\bna\tnu-hanford-0306-339,357,366,372.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 3 3 pages.

GLOSSARY OF BNA DATA

DATA QUALIFIERS

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- lndicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = ... Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference,
- NQ = Result qualitatively confirmed but not able to quantify.
- A = Indicates that a TIC is a suspected aldol-condensation product.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.



F

GLOSSARY OF BNA DATA

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Suffix added to sample number to indicate that results are from a diluted analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR Not Required.
- SP, Z = Indicates Spiked Compound.



TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quantitation modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quantitation modifications:

- MP Missed Peak: manually added peak not found by automatic quantitation program.
- PA Peak Assignment: quantitation report was changed to reflect correct peak assignment.
- RI Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.



L-WI-035/a-mi-10/00

Lionville Laboratory, Inc.

Client: TNUHANFORD F03-006 H2195

RFW Batch Number: 0305L339

*= Outside of EPA CLP QC limits.

Semivolatiles by GC/MS, Special List

Report Date: 06/19/03 14:38

Page: _ 1a

Work Order: 11343606001

B16W85 SBLKTK BS Cust ID: B16W84 B16W85 B16W85 SBLKTK 002 002 MS 002 MSD 03LE0575-MB1 03LE0575-MB1 001 Sample RFW# : SOIL SOTE SOIL SOIL SOIL SOIL Information Matrix: 1.00 1.00 1.00 1.00 D.F.: 1.00 1.00 UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG Units: 왐 ¥ 79 ¥ 왗 ¥ Nitrobenzene-d5 76 욯 85 66 76 73 왍 80 왛 66 ş 76 ž 72 ۶ 71 웋 Surrogate 2-Fluorobiphenyl 70 ¥ Terphenyl-d14 91 왐 106 옿 87 옿 93 86 92 왐 Recovery Phenol-d5 76 옿 86 왐 65 ¥ 79 * 77 ş. 73 왐 ۶. 59 ક્ષ 72 옿 2-Fluorophenol 67 ¥ 75 66 ş. ¥ 75 ¥ 68 옿 76 옿 67 왐 2,4,6-Tribromophenol 70 71 ==f1 Τĭ 360 Ü 62 옿 76 ł 330 U ¥ Phenol 360 70 bis (2-Chloroethyl) ether_____ 360 U 360 U 360 IJ 360 П 330 U 330 U 2-Chlorophenol 56 67 옿 330 IJ 360 U 360 U 옿 65 8 1.3-Dichlorobenzene Ħ 360 U 360 IJ 360 360 ŦΤ 330 U 330 U 1,4-Dichlorobenzene 68 ş. 330 U 360 U 360 U 58 ž 66 왛 1.2-Dichlorobenzene_____ 360 IJ 360 IJ 330 U 360 U 360 U 330 U 360 U 360 II 360 u 360 U 330 II 330 13 2-Methylphenol 2,2'-oxybis(1-Chloropropane) 360 U 360 U 360 Ũ 330 U 360 U 330 U 3- and/or 4-Methylphenol____ 360 U 360 U 360 U 360 U 330 U 330 U N-Nitroso-di-n-propylamine 61 73 ¥ 360 U 360 U 옿 330 TT 69 ¥ Hexachloroethane_____ 360 II 360 U 360 U 360 U 330 II 330 II Nitrobenzene_____ 360 U 360 U 360 U 360 IJ 330 U 330 U 360 U 360 U 360 U 360 U 330 U 330 U Isophorone 2-Nitrophenol_____ U 360 U 360 U 360 U 360 330 U 330 U 2,4-Dimethylphenol_____ 360 U 360 U 360 U 360 U 330 U 330 U bis (2-Chloroethoxy) methane U 360 U 360 U 360 U 360 330 TI 330 U 2,4-Dichlorophenol 360 U 360 U 360 U 360 U 330 U 330 Ū 1,2,4-Trichlorobenzene 59 360 U 360 U 왕 71 옿 330 U 68 왐 360 U U 360 U U Naphthalene 360 360 330 IJ 330 U 4-Chloroaniline 360 U 360 U 360 IJ 360 U 330 U 330 U Hexachlorobutadiene_____ 360 U IJ 360 U 360 U 360 330 U 330 U 4-Chloro-3-methylphenol____ 360 U 360 U 60 ¥ 69 왉 330 U 68 왐 2-Methylnaphthalene_____ 360 U 360 U 670 360 U 330 U 330 U Hexachlorocyclopentadiene____ 360 U 360 U 360 Ū 360 U 330 U 330 U 2,4,6-Trichlorophenol_____ 360 U 360 U 360 U 360 U 330 U 330 U 2,4,5-Trichlorophenol _____ 910 U 900 U 900 U 900 U 830 U 830 U

RFW Batch Number: 0305L339		UHANFORD F03				Order: 11	<u> 343</u>			Page: 1b	
Cust ID:	B16W84	B16W85		B16W85		B16W85		SBLKTK		SBLKTK BS	
		200		000 44		000 400					
RFW#:	001	002		002 MS		002 MSD		03LE0575-ME	ΙŢ	03LE0575-M	æ1.
2-Chloronaphthalene	360 U	360	U	360	Ū	360	U	330	U	330	
2-Nitroaniline	910 U	900	U	900	U	900	U	830	U	830	U
Dimethylphthalate	์ 360 บ	360	U	360	U	360	U	330	U	330	U
Acenaphthylene	360 U	360	Ū	360	U	360	U	330	U	330	U
2,6-Dinitrotoluene	360 U	360	U	360	U	360	U	330	U	330	U
3-Nitroaniline	910 U	900	U	900	Ū	900	U	830	U	830	Ū
Acenaphthene	360 U	360	U	62	¥	72	¥	330	U	68	૪
2,4-Dinitrophenol	910 U	900	U	900	U	900	U	830	U	830	U
4-Nitrophenol	910 U	900	Ū	52	*	64	ક્ર	830	U	79	૪
Dibenzofuran	360 U	360	U	360	U	360	U	330	U	330	U
2,4-Dinitrotoluene	360 U	360	Ū	70	૪	83	웋	330	U	83	*
Diethylphthalate	360 U	360	Ü	360	Ū	360	U		U	330	U
4-Chlorophenyl-phenylether	360 U	360	Ū	360	Ü	360	U	330	U	330	υ
Fluorene			U	360	U	360	U		U	330	U
4-Nitroaniline	•		U	900	U	900	U	830	U	830	U
4,6-Dinitro-2-methylphenol	910 U		U	900	U	900	U	830	U	830	Ū
N-Nitrosodiphenylamine (1)	360 U	360	U	360	U	360	U	330	U	330	U
4-Bromophenyl-phenylether			U	360	U	360	U	330	U	330	U
Hexachlorobenzene	360 U		Ū	360	Ū	360	U	330	U	330	U
Pentachlorophenol	910 U		U	58	8	68	કૃ	830	U	82	*
Phenanthrene			Ū	360	U	360	U	330	Ū	330	U
Anthracene	•		Ū	360	Ū	360	U	330	U	330	Ū
Carbazole	-	360	U	360	U	360	U	330	U	330	Ū
Di-n-butylphthalate	•		Ū	360	Ū	360	Ū	330	Ū	330	Ū
Fluoranthene			Ū	360	ΰ	360	Ū	330	Ū	330	Ū
	-		Ū	82	ě	85	¥	330	U	81	g.
PyreneButylbenzylphthalate	_		Ū	360	Ū	360	Ū	330	Ū	330	
3,3'-Dichlorobenzidine	_ 360 U		บ	360	Ü	360	Ū		Ū	330	U
Benzo (a) anthracene	360 T		บ	360	Ū	360	Ū		Ū	330	_
Chrysene	360 U		Ü	360	Ū	360	Ū	330	Ū	330	
bis(2-Ethylhexyl)phthalate	_		บั	33	J	54	J		Ū	51	J
Di-n-octyl phthalate	360 U		บ	360	IJ	360	U		Ū	330	
Benzo(b) fluoranthene	360 U			360	•	360	-	330		330	
				360		360	Ü	330		330	
Benzo(a) pyrene	_			360		360	Ū	330		330	
Benzo(a)pyrene Indeno(1,2,3-cd)pyrene	_ 360 t			360		360	Ū	330		330	
Dihang(a h)anthracene	_ 360 U			360		360	Ū	330		330	
Dibenz(a,h)anthracene	_ 360 t			360		360	บ	330		330	
Benzo(g,h,i)perylene	_			360		360	Ū	330		330	
2-Butoxyethanol	_ 360 U			360		360	Ū	330		330	
Benzyl alcohol *= Outside of EPA CLP QC limits.	_ 300 (, 500	J	300	J	200	-	330	J	330	U

RFW Batch Number: 0305L339	Client: TNUHA	NFORD F03-006	H2195 Work	Order: 11343	606001	Page: 1c
Cust ID:	B16W84	B16W85	B16W85	B16W85	SBLKTK	SBLKTK BS
RfW#:	001	002	002 MS	002 MSD	03LE0575-MB1	03LE0575-MB1
Tributylphosphate	360 U henylamine. *=	360 U Outside of EP	360 U A CLP QC limit	360 U	330 U	330 U

Lionville Laboratory, Inc.

RFW Batch Number: 0305L339

Semivolatiles by GC/MS, Special List

Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001

Report Date: 06/19/03 14:38

Page: 2a

B16W87 B16W88 Cust ID: B16W86 Sample RFW#: 357-001 366-001 372-001 Information Matrix: SOIL SOIL SOLID 1.00 D.F.: 1.00 1.00 Units: UG/KG UG/KG UG/KG Nitrobenzene-d5 82 X 84 왐 78 Ł ¥ 81 왛 2-Fluorobiphenyl 79 ક 81 Surrogate Terphenyl-d14 104 ¥ 110 왐 97 왛 Recovery Phenol-d5 83 왐 85 74 왐 왐 2-Fluorophenol 72 ¥ 73 * 53 ¥ 2,4,6-Tribromophenol **7**5 79 28 340 U Phenol 340 340 bis(2-Chloroethyl)ether____ 340 U 340 U 340 U 2-Chlorophenol _ _ _ _ _ _ 340 U 340 U 340 U 1,3-Dichlorobenzene 340 U 340 U 340 U 1,4-Dichlorobenzene_____ 340 U 340 U 340 IJ 1,2-Dichlorobenzene_____ 340 U 340 U 340 IJ 340 U 2-Methylphenol 340 U 340 U 2,2'-oxybis(1-Chloropropane) 340 U 340 U 340 U 3- and/or 4-Methylphenol_____ 340 U 340 U 340 IJ N-Nitroso-di-n-propylamine____ 340 U 340 U 340 U Hexachloroethane _____ 340 U 340 U 340 U Nitrobenzene_____ 340 U 340 U 340 Ū Isophorone_____ 340 U 340 U U 340 340 U 2-Nitrophenol 340 U 340 U 2,4-Dimethylphenol ___ _ ___ 340 U 340 U U 340 bis (2-Chloroethoxy) methane 340 U 340 U 340 U 2,4-Dichlorophenol_____ 340 U 340 U 340 U 1,2,4-Trichlorobenzene____ 340 U 340 U 340 Ū 340 U 340 U Naphthalene 340 U 4-Chloroaniline 340 U 340 U 340 U Hexachlorobutadiene_____ 340 U 340 U 340 Ū 4-Chloro-3-methylphenol____ 340 U 340 U 340 U 2-Methylnaphthalene 340 U 340 U 340 U Hexachlorocyclopentadiene _ _ ___ 340 U 340 U 340 U 2,4,6-Trichlorophenol 340 U 340 U 340 U 2,4,5-Trichlorophenol 860 U 860 U 840 U *= Outside of EPA CLP QC limits.

*= Outside of EPA CLP QC limits.

Cust ID	: B16W86	•	B16W87		B16W88		
RFW#	: 357-001		366-001		372-001		, ,
2-Chloronaphthalene	340	U	340	Ü	340	Ū	
2-Nitroaniline		U	860	U	840	U	
Dimethylphthalate	340	U	340	U	340	U	
Acenaphthylene	340	Ū	340	U	340	Ū	
2,6-Dinitrotoluene		U	340	U	340	U	
3-Nitroaniline		U	860	U	840	U	
Acenaphthene		Ū	340	Ū	340	U	
2,4-Dinitrophenol		U	860	U	840	U	
4-Nitrophenol		Ŭ	860	Ū	840	U	
Dibenzofuran		Ū	340	U	340	Ü	
2,4-Dinitrotoluene		U	340	U	340	Ü	
Diethylphthalate	340	U	340	U	340	U	
4-Chlorophenyl-phenylether	340	U	340	U	340	U	
Fluorene		U	340	ט	340	U	•
4-Nitroaniline	860	Ū	860	U	840	U	
4,6-Dinitro-2-methylphenol	860	υ	860	Ü	840	U	
N-Nitrosodiphenylamine (1)		Ū	340	Ū	340	Ū	
4-Bromophenyl-phenylether	340	U	340	Ū	340	U	
Hexachlorobenzene	340	Ū	340	U	340	U	
Pentachlorophenol		U	860	U	840	U	
Phenanthrene		U	340	Ū	340	U	
Anthracene		U	340	U	340	Ū	
Carbazole		Ū	340	υ	340	U	
Di-n-butylphthalate	340	U	340	U	340	U	
Fluoranthene		U	340	U	340	U	
Pyrene		U	340	U	340	U	
Butylbenzylphthalate	340	U	340	U	340	U	
3,3'-Dichlorobenzidine		Ū	340	U	340	U	
Benzo(a)anthracene	340	Ŭ	340	U	340	U	
Chrysenebis(2-Ethylhexyl)phthalate	340	U	340	U	340	U	
bis(2-Ethylhexyl)phthalate	340	U	18	J	47	J	
Di-n-octyl phthalate		Ū	340	U	340	U	
Benzo(b)fluoranthene	340	U	340	U	340	U	
Benzo(k)fluoranthene	340	U	340	U	340	U	
Benzo(a)pyrene	340	Ū	340	Ü	340	Ū	
Indeno(1,2,3-cd)pyrene	340	U	340	U	340	U	
Dibenz(a,h)anthracene	340	U	340	U	340	Ū	
Benzo(g,h,i)perylene	340	U	340	U	340	U	
2-Butoxyethanol		U	340	U	340	U	
Benzyl alcohol	340	Ŭ	340	U	340	U	
Control of Part Care Con 11-12-12-12							

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

ı		
ı		
!		
ı	B16W84	
l	D10M04	
:		
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Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-006 H2195

Matrix: (soil/water) SOIL Lab Sample ID: 0305L339-001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 060819

Level: (low/med) LOW Date Received: 05/03/03

% Moisture: 8 decanted: (Y/N) Date Extracted: 05/14/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/08/03

Injection Volume: 2.0(uL) Dilution Factor: 1.00

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	_ =====================================	======	======================================	====
1.	UNKNOWN	3.178	2000	J
2.	ALDOL CONDENSATE	3.552	200	JAB
3.	ALDOL CONDENSATE	4.126	20000	JAB
		1		į

1 F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B16W85

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-006 H2195

Matrix: (soil/water) SOIL Lab Sample ID: 0305L339-002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 060823

Level: (low/med) LOW Date Received: 05/03/03

% Moisture: ____7 decanted: (Y/N)__ Date Extracted: 05/14/03

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/08/03

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:
Number TICs found: _3 (ug/L or ug/Kg) <u>UG/KG</u>

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
		======		====
1.	UNKNOWN	3.182	100	J
2.	ALDOL CONDENSATE	3.529	200	JAB
3.	ALDOL CONDENSATE	4.112	20000	JAB
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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

C	LIENT	SAMPLE	NO.
1		_	
l IB1	SMR S		

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-006 H2195

Matrix: (soil/water) SOIL Lab Sample ID: 0305L357-001

Sample wt/vol: 30.0 (g/mL) \underline{G} Lab File ID: $\underline{D060826}$

Level: (low/med) <u>LOW</u> Date Received: <u>05/07/03</u>

% Moisture: ___3 decanted: (Y/N)__ Date Extracted: 05/14/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/09/03

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: __7.0

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	计当年日本表示表现的表现的数据图像是对对的各种证明	======		=====
1.	UNKNOWN	3.184	100	J
2.	ALDOL CONDENSATE	3.549	200	JAB
] 3.	ALDOL CONDENSATE	4.131	30000	JAB
j į				

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

B16W87			

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-006 H2195

Matrix: (soil/water) SOIL Lab Sample ID: 0305L366-001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D060827

Level: (low/med) LOW Date Received: 05/08/03

% Moisture: ___3 decanted: (Y/N)__ Date Extracted: 05/14/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/09/03

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

1	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1					====
	1.	UNKNOWN	3.183	100	J
	2.	ALDOL CONDENSATE	3.557	300	JAB
-	3.	ALDOL CONDENSATE	4.140	30000	JAB
			l !		

1F SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B16W88		

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-006 H2195

Matrix: (soil/water) <u>SOLID</u> Lab Sample ID: <u>0305L372-001</u>

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 060828

Level: (low/med) LOW Date Received: 05/09/03

% Moisture: ___1 decanted: (Y/N)__ Date Extracted: 05/14/03

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/09/03

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: __7.0

Number TICs found: _7 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	1	1		
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
		======	######################################	
1.	UNKNOWN	3.196	300	J
2.	ALDOL CONDENSATE	3.561	300	JAB
] 3.	ALDOL CONDENSATE	4.135	30000	JAB
4.	ALDOL CONDENSATE	5.300	100	JA
5.	UNKNOWN	11.003	90	J
6.	ALKANE	22.810	100	J
7.	UNKNOWN	22.897	300	J
<u> </u>	Ĺ	.		İ

1F SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKTK

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-006 H2195

Matrix: (soil/water) SOIL Lab Sample ID: 03LE0575-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0060718

Level: (low/med) LOW Date Received: 05/14/03

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/14/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/07/03

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	======================================		======	========	=====
- [1.	ALDOL CONDENSATE	3.543	200	JA
	2.	ALDOL CONDENSATE	4.125	20000	JA
1	3.	UNKNOWN	21.471	80	J
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Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page _____of____

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03056339

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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Lionville Lab	oratory	Project Manager		me	X		-	Preserva	tives	 												-		1	
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DL - Drum Liquids	<u> </u>	 															-	-							
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Special Instruc	tions:	SAF ==	F03-05	ی ر			DATE/R	EVISION	1. Per	1.11	5	7.1		c -1	6-01					Lionvi	ile Lab	oratory	Use O	nly	
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FH-Central Plates	u Project	CI	HAIN OF CUST	ODY/S	SAMPLI	EANAL	<u>Y SIS</u>	KEQUESI				٠	
Collector Johansen/Pope/Pfister	·····		nny Contact Hulstrom	Telepho 373-3				Project Coordin TRENT, SJ	ator	Price Code	8N		rsaround
Project Designation 200-PW-2/200-PW-4 OU - B	orehole Soil Sampling	Sampl 216	ing Location -A-37 (C4106); (72.5'-75	i)				SAF No. F03-006	A	Air Quality		45 .	Davs _
Ice Chest No. ERC	-01.038	Field I	Logbook No. F-N-3361		COA 117504ES	510		Method of Ships Federal Expres					2
Shipped To EBERLINE SERVICES (For POSSIBLE SAMPLE HAZA	CA MENTAN PSIL 41	12/05 Offsite	e Property No.	103	0 22	-1		Bill of Lading/	Air Bill N	0. S#	EE S	5 PC_	- 4
Kadiose	tive		Preservation	Cool 4C	Cool 4C	Coal 4C	Nos	e None	, _				
Cassial Handling and/or C	TO BIGWDE)	Type of Container	aG	aG	aG	aG	aG/					
Special Handling and of	508 14°4		No. of Container(s)	1	1	1	1	/ /			<u> </u>		
			Volume	120mL	60mL	120mL	60m	L 60mL					
	SAMPLE ANALYS	SIS		Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413,1	See item Speci Instruct	¥71. I					
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Sample No.	Matrix *	Sample Date	Sample Time	1877 1977 1977 1977 1977 1977 1977 1977									
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CHAIN OF POSSESSIO		Sign/Prin			SPE	CIAL INST	UCTIO	ONS 959		4/03	AR The Johann		Matrix *
Religious shed By/Rentoved From UVUY	12-4-30-03-1430	Received By/Stor		nte/Time +03 143				el range compounds			The laborat	ory is to	S=Soil SE=Sodiment
Relinquished By/Removed From	Date/Time 1426	Received By/Sto	ad in Da	ite/Time [C		Fectoretium-99, Niekel-63, Nep		n-89,90 — Total Sr, II		2 1	232); Carbon-1	4: ladine-	SO=Solid Si=Sludge W = Water
Relinquished By/Removed From		Received By/Stor	red In Da	30 0 7	100		-	180	- 4	12/03			O-Oil A-Air
Retinguished By/Removed From	5.2.03	1 FER	2 Pachille	secTime	Z					,			DS=Drum Solids DL=Drum Liquids T=Tissue
RELOOP.	Fehlla 5-203	Received By/3io	dEx					•					Wi=Wipe L=Liquid V=Vegetation
Relinquished By/Removed From	5303 11:00	Received Dy Stor		te/Time	اريد								X=Other
Relinquished By/Removed From	Date/Time	Received By/Stor	ed in Di	ate/Time									
LABORATORY Received By SECTION	у			T	icle							Pate/Time	
FINAL SAMPLE Disposal M DISPOSITION	lethod		· 			Dispo	ised By				í	Date/Time	
													

FH-Central Pla	teau Project	СН	AIN OF CUST	ODY/S	AMPLE	EANAL	YSIS	REQUEST	<u> </u>	F03	8-006-68	Lake T	·
Collector Johansen/Pope/Pfister		Compan	y Contact uistrom	Telephor 373-39	ne No.		·	Project Coordi TRENT, SJ	nator	Price Code	8N		rnaround
Project Designation 200-PW-2/200-PW-4 OU	J - Borehole Soil Sampling		g Location A-37 (C4106); (97.5'-10)0')				SAF No. F03-006	A	Air Quality		45	Days
ce Chest No.	RC 01-038	Field Lo HNF-	ogbook No. N-3361		COA 117504ES	310		Method of Ship Federal Expre				·	<u> </u>
Shipped To EBERLINE SERVICES	(Pormerly TMA)	4/23/63 Offsite	Property No.	9030) ZZ	1		Bill of Lading/	Air Bill N	o. SE	F_ 05	PC_	<i>∾</i>
	adjoketive	" ' '	Preservation	Cool 4C	Cool 4C	Cool 4C	None	: None					
., .	BIGNDI	<u> </u>	Type of Container	aG	яG	aG	aG	a				1	
Special Handling and/	CO01400	_ [No. of Container(s)	i	7	l .	1	l					
			Volume	120mL	60mi.	120mL	60ml	<u>/</u>					
				Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item (Specia Instruction	i /]					
	SAMPLE ANAL	YSIS					RAY	(1) (1)		Tie	7.		
Sample No.	Matrix *	Sample Date	Sample Time										
B16W85	SOIL	4-30-03	1738	K	X	7				BILL	ΦDI		
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CHAIN OF POSSES	SION	Sign/Print !	Names		lene	CIAL INCTE		10 181	1/2	101			Matrix *
Relinquished By/Rentoyed Emp		Received By/Stored	In Exc D	ate/Time		CIAL INSTR The laboratory is it both kerosene	to achieve and diese	NS 131- e a detection limit of frange compounds	from WTPH	Nor Carbon-14. I-D analysis.	** The labor	atory is to	S=Sail SE=Sediment
Relinquished By/Removed From	Date Time 1 4	l	l ls D	30-03/4 ale/Time / y 30-03	30 W	Technotium 99, Nicket-63, Nep		-89,90 — Tolai Sr; 1		num (Thorium-	732}; Carbon	-14; Iodine-	SO=Solid SI=Skelge W = Water
Relinquished By/Removed From			i In D	me/Time (00	70	·		7/60					O=Oil A=Air DS=Drum Solids DL=Drum Liquids
Relinquished By/Removed From	(thiban 5.2.00	O Received By/Stored		ate/Time					•				T=Tiesec WI=Wipe L=Liquid V=Vegetaion
Relinquished By/Removed From	<u> </u>	Received By Stored	miss 53	ate/Time -U3 /(:)	<u>∞</u>								X-Other
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LABORATORY Receive SECTION	ed By			Tù	iic							Date/Time	— - -
FINAL SAMPLE Dispos DISPOSITION	al Method					Dispo	sed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Hanford

irchase Order/Project:

DATE: 53.03

AF# SOW# / Release #: F03.006

aboratory SDG #:

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping DNo D N/A D see Comment # container intact, signed and dated? Outside of coolers or shipping containers are ₩ Yes □ No D N/A D see Comment # free from damage? 3. Airbill # recorded? Q)Yes D No D N/A ☐ set Comment # 4. All expected paperwork received (coc and other client specific: historical data D No D N/A D see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) 5. Sample containers are intact? Ò**⊅**Yes □ No D N/A ☐ see Comment # Custody seals on sample containers intact, D No D N/A ☐ see Comment # signed and dated? All samples on coc received? O No D N/A D see Comment # Yes All sample label information matches coc? DNo D N/A · D see Comment # 9. Laboratory QC samples designated on coc? D Yes D No D'WY ☐ see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance Yes Yes D No O N/A D see Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes D No DN/A affixed to coc? See Comment # 12. coc signed and dated? **∭**Yes D No D N/A D see Comment # 13. coc will be faxed or emailed to client? Yes. D No D N/A D see Comment # 14. Project Manager/Client contacted EN/A D Yes □ No concerning discrepancies? (name/date) D see Comment #

Cooler # / temp (°C) and Comments:

ELC 01-038/0.6"

Laboratory Sample Custodian:

Laboratory Project Manager:

D. Smith

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Lionville Laboratory Use Only

Client TNU Hanford

F03-006

Custody Transfer Record/Lab Work Request Page 1 of 1

Liquid

0305L357	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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Lionville Laboratory Use Only	亏
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plent or Chilles 3) Present on Sample over the Good 7 or N	e

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FH-Central Plateau	Project	CF	IAIN OF CUST	ODY/S	AMPL	E ANAL!	YSIS	REQUES	T	FO	3-006-69	Page 1	of <u>l</u>
Collector Johansen/Pope/Pfister		Compa	ny Contact Iulstrom	Telephor 373-39	ne No.			Project Coord TRENT, SJ	linator	Price Code	8N	Data Tur	1
Project Designation 200-PW-2/200-PW-4 OU - Boo	ehole Soil Sampling	Sampli 216-	ing Location -A-37 (C4106); (147.5'-1	50')				SAF No. F03-006		Air Qualit	y 🗆	45 1	Days
Ice Chest No.	-01-063		Logbook No. F-N-3361		COA 117504E	S10		Method of Sh Federal Exp					- 2 9
Shipped To RECI	LA ISM	Offsite	Property No.	7038	222			Bill of Ladin	g/Air Bill	No. SE	E OSF	~	
POSSIBLE SAMPLE HAZAR	DS/REMARKS '		Preservation	Cool 4C	Cool 4C	Cool 4C	Nor	ne None					
Tie To B. Special Handling and/or Sto			Type of Container	aG	аG	aG	aG	1 20					
	00/40		No. of Container(s)	1 120mL	l 60mL	120mL	60m	ıL 60mL	-			<u> </u>	· · ·
			Volume	Chromium Hex - 7196	NO2/NO3 353.2	- Oil & Grease -	See item Speci		;				
	SAMPLE ANALY	/SIS		,			Instruct						
			Gto Time		S prompley styl		Ny		42 to 2 5 7 4		Tieto:		
Sample No. B16W86	Matrix *	Sample Date	Sample Time	~	+	\ \ \ \	/				Bruto	- BILL	2D8
					-	-	 		-			-	-
CHAIN OF POSSESSION		Sign/Prin	t Names	<u> </u>	ISP	ECIAL INSTI	RUCTU	ONS A	Sec	4/22/03		<u> </u>	Matrix *
Relinquished By/Removed From Relinquished By/Removed From	5/5/03 13/5 Date/Time	Received By/Sto	red in A 5-5-03 D	ate/Time 131) sate/Time	TC	The laboratory is port both kerosen Technetium-99	s to echic e and die Stronnu	ve a detection fim sel range compour m-89,90 — Total 3	i t of 50.0 p ids from W ir-1sotopic	G/g for Carbon 1 TPH-D analysis. Thorium {Thorium		-	S=Soil SE=Sodiment SO=Solid SI=Studge W = Water
Relinquished By/Removed From	Date/Time 1000	Received By/Sto	<u> </u>	5 6 03 ate/Time	12	9, Nickel-63, Ne Personnel	not ava		= i];	??/u} -			O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue
Relinquished By/Removed From Relinquished By/Removed From	5.7.03 /10:10 Date/Time	an 5.7.03	Pate/Time				5 16 10)		_			WI=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From	Date/Time	Received By/Sto	ored in D	ate/Time									
LABORATORY Received By SECTION				1	itle							Date/Time	
FINAL SAMPLE Disposal Me DISPOSITION	ethod					Disp	osed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Hanford

irchase Order/Project:

DATE: 5.7.03

AF#)SOW#/Release #: FO 3-00L

aboratory SDG #:

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION YYE Custody seals on coolers or shipping D No D N/A D see Comment # container intact, signed and dated? Outside of coolers or shipping containers are Q:Yes D No D N/A ☐ see Comment # free from damage? Airbill # recorded? X Yes D No D N/A Disec Comment # All expected paperwork received (coc and Ø∵Yes D No D N/A other client specific: historical data. D see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? √ Yes D No O N/A See Comment # Custody seals on sample containers intact, D No. O N/A D see Comment # signed and dated? All samples on coc received? PYes D No DNA D see Comment # Q Yes D No DN/A See Comment # 8. All sample label information matches coc? Laboratory QC samples designated on coc? □ No D N/A D see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance D Yes D No DNA D see Comment # Policy? (identify all bonles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes O No **D'N/A** D see Comment # affixed to coc? Y Yes D No DNA 🗖 see Comment # 12. coc signed and dated? 13. coc will be faxed or emailed to client? D No DNA D see Comment # 14. Project Manager/Client contacted ET N/A D Yes D No ☐ see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC-01-063 /2.3"

Laboratory Sample Custodian:

Laboratory Project Manager:

Whien

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

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03051366

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU-Harriord F03-001 Refrigerator # Est. Final Proj. Sampling Date Project # 11343-606.001-9999-00 #/Type Container Solid 150 160 160 160 160 160 160 160 160 160 16	
Est. Final Proj. Sampling Date Project # 11343-406.001-9999-00 Project Contact/Phone # Liquid Solid Iquid	
Project # 11343-406.001-9999-00 Project Contact/Phone # Lionville Laboratory Project Manager Chilette Collected Solid Date Rec'd 5.8.03 Date Due 5.70 Matrix CODES: S- Soliment SO-Solid SL- Studge Solid MS MSD Solid Solid Liquid Liquid Solid Liquid Solid Client ID/Description Solid Solid Client ID/Description Solid Solid Client ID/Description Solid Liquid Solid Solid Client ID/Description Solid Solid Client ID/Description Solid Solid Client ID/Description Solid Client ID/Description Solid Solid Client ID/Description Solid Solid Client ID/Description Solid Solid Client ID/Description Solid Matrix Collected Solid Client ID/Description Solid Matrix Collected Solid Client ID/Description Solid MS MSD MS MSD	
Project Contact/Phone # Lignorille Laboratory Project Manager Drug to	
Date Rec'd 5.8.03 Date Due 5.7.03 Date Due 5.7.03 Date Due 5.7.03 Date Secretarion Preservatives Date Rec'd 5.8.03	
Date Rec'd 5.8.03 Date Due 6.7.03 ANALYSES REQUESTED ORGANIC INORG TO THE COLORS: S - Soil SE - Sediment SO - Solid SL - Sludge SL - Sludge ORGANIC ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORG TO THE COLOR ORGANIC INORG TO THE C	
MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge Matrix Collected Matrix Collected	
MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge Matrix Collected Matrix Collected	-
MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge MATRIX OC Chosen (v) Matrix OC Chosen (v) Matrix OC Chosen (v) Matrix OC Chosen (v) Matrix OC Chosen (v) Matrix OC Chosen (v) Matrix OC Chosen (v) Matrix OC Chosen (v) Matrix OC Chosen (v) Matrix OC Chosen (v) Matrix OC Chosen (v) NATIX OC Chose	
S - Soil SE - Sediment SO - Solid SL - Sludge Collected SL - Sludge Collected Collecte	
SL - Sludge	1
SL - Sludge	i
1 TT - TOUGH 1 1 1/11 5/57 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- -
0-01 B161087 XXX S 5.608 0945	-
DS - Drum Solids	
DL - Drum	
L- EP/TCLP	i i
WI - Wipe	-
X - Other F - Fish	
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DATE/REVISIONS:	
Special instructions: SAF # +33-000 S-14-0 } Par (1-0)	 -
ALL: As A, B Ba Be B; Cd Cr Ca Ha 1) Shipped or 1) Present	
Batch QC & L339. 357.366.372 3. N: Pb Sb. Se / IC: Cl. Fl. NO3, No. P 04 504 Airbill #	O or N
207 7424 42 18 Package	nor N
\cdot	on Sample n or N
5. ODGO ON 4) Unbrok	กอก
6. 4) Samples Sample (Property Preserved COC Rec	
Helinquished Heceived Date Time Helinquished Heceived Discrepancies Between Upon San	e Rec't
	Y) or N
Sense Disco COMPOSITE REWRITTEN COC Record? Y or M Holding Times Cooler Tempc	171

FH-Central Platea	u Project	CI	HAIN OF CUST	CODY/S	AMPLE	ANAL	YSIS	REQUEST	[F03	-006-70	Page 1	of 1
Collector Johansen/Pope/Pfister		Compa	any Contact Hulstrom	Telephor 373-39	ne No.			Project Coordi TRENT, SJ	nator	Price Code	8N	Data Tur	1
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling	Sampl 216	ing Location -A-37 (C4106); (197.5'-7	SAF No. F03-006 Air Quality							45 I)ay 	
Ice Chest No. ERC	99.022	Field I	Logbook No. F-N-3361		COA 117504ES	10		Method of Ship Federal Expre				. <u></u>	
Shipped To EBERLINE SERVICES (For	REIFA	Offsite	e Property No.	A03E	22	>	·	Bill of Lading	Air Bill	No. SE	EB	PC	ු ව
POSSIBLE SAMPLE HAZA	RDS/REMARKS	/	Preservation	Cool 4C	Cool 4C	Cool 4C	Non	ne None					
	BILWDO		Type of Container	aG	aG	aG	a C	aC/					· ·
Special Handling and/or S	0014°C		No. of Container(s)	1 120mL	l 60mL	120mL	1 60m					<u> </u>	i
·	·		Volume		NO2/NO3 -	Oil & Grease -	See item				 		<u> </u>
· . 	SAMPLE ANALYS	is		Chromium Hex - 7196	353.2	413.1	Speci	iai´/					
	SAME DE ANALIS						A.Y	alan		Tieto:		!	
Sample No.	Matrix *	Sample Date	Sample Time								عب مست المشكلة المؤهدة		
B16W87	SOIL	5/6/03	0945	1 1	1	1-	/		<u> </u>	Brawa		 -	
,	 			 	 	 -	 		-			 	
GILLAN ON POORTOGY				<u>L.</u>		<u> </u>	<u> </u>		<u>l.</u> ,	7. /	<u> </u>		
CHAIN OF POSSESSIC		Sign/Prin	red In E	Date/Time		the laboratory	s to achie	ONS JGL eve a detection think escl range compound	or 50.0 p	22/43 City for Carbon-14:	** The labora	atory is to	Matrix *
Relinquished By/Removed From	0 5 6 6 5 100 E			0163 11C	\boldsymbol{v}								SE=Sediment SO=Solid
Relinquished By/Removed From	Date/Time 1000	Received By/Sto	med In	5-7		Nickel 61; No	ptunium:	10121 Sr;		Thorium (Thorium-	232); Carbon	14, lodine	SI=Studge W = Water O=Oii
Relinquished By/Removed From	ZC Date/Time 1000	Received By/Sto	ored In	Date/Time				- 7	7	* /			A=Air DS=Drum Solids
Relinguished By Removed From		Fe of E	vent in	Oste/Time		rsonnel not							DL=Drum Liquids T=Tissue
Relinquished By/Removed From	5.8.03 10:00	Received By Sto	milh 58	03 10:0	rei Re	linquish sam ef#/ 🗐 or	iples fro	om the 3728 E		•			WI=Wipe L=Liquid
Relinquished By/Removed From	Date/Time	Received By/Sto	ored in	Date/Time									V=Vegatation X=Other
Relinquished By/Removed From	Date/Time	Received By/Sto	ored in I	Date/Time									
LABORATORY Received B	ly			T	itle							Date/Time	
FINAL SAMPLE Disposal N DISPOSITION	Aethod					Disp	osed By					Date/Time	 _
L													

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Hambord

irchase Order/Project:

DATE: 5.8.03

SOW#/Release#: FO3-OOL

aboratory SDG #:

TE:	ALL ENTRIES MARKED "NO" MUST BE E	EXPLAINED II	THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	Yes	_ 0N□ .	□ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	by Yes	D No	D N/A	□ see Comment #
3.	Airbill # recorded?	te Yes	D No	DNA	See Comment #
4.	All expected paperwork received (coc and other client specific: historical data, a)pha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	ta y es	□ No	D N/A	□ see Comment#
5.	Sample containers are intact?	bres	D No	□ N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	D'Yes	D No.	D N/A	🖸 see Comment #
7.	All samples on coc received?	U Yes	□ No	DNA	· D see Comment #
8.	All sample label information matches coc?	Yes	D No	D N/A	□ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	D/Yes	□ N ₀	D N/A	D see Comment #
10.	Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	O Yes	□ No	A/N C	D sec Comment #
11.	Where applicable, bar code labels are affixed to coc?	D Yes	© №0	ATKE	🖸 see Comment A
12.	coc signed and dated?	DYes	□ No	D N/A	D see Comment
13.	coc will be faxed or emailed to client?	E Yes	DNo	D N/A	See Comment
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	D Yes	□ No	ONIA	[] see Comment

Cooler # / temp (°C) and Comments:

ERC 99-022 /2.0"

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory Use Only

03054372

Custody Transfer Record/Lab Work Request Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

																			<u> </u>	 1			- ~	
Client IN	1 - F	LANFORD	F03	-006		· 	Retrige	ator #											2		4		-	_
Est. Final Pro	i. Sami	olina Date					#/Type	Container	Liquid										, ,			↓	154	
Project #		11343-60	6.001-	9999-00		∤			Solid										A6	146	116			3
Project Conta							Volume		Liquid										10.5					
Lionville Labo	oratory	Project Manager		05	<u> </u>	¦			Solid							}			مدر	lo	120		-{	
oc spec	==	DelSM	TAT				Preserv	atives	<u> </u>		ORG	ANIC			╌╌┤		INO	BG	. ^	32	\ \ \ \			
			- '	6-16-0		1	ANALY		-	¥			ē	[[Ī		7	them Hex	٧٥,	0,7			
Date Rec'd	2-	9-03	ate Due _	6-8-01	<u>~~</u>	∤	REQUE	STED		VOA	BNA	Pest/ PCB	Herb				Metal	S	Her	دور	Gbr		1	
MATRIX		Ţ 			Ma	trix							1	L	Lionví	lle Lat	orato	ry Us	e Only		1			,-
CODES:	Lab		. 10.0	. až	Cho	C sen	Matrix	Date	Time				1	Ì	}	1				٦	٦	}		}
S - Soil SE - Sediment	ID	Cite	Client lu/Description	Client ID/Description	(? │	MALIA	Collected	Collected		Ì		1	1	l	- (3	ZNCHI	1000		ļ	1
SO - Solid SL - Sludge	<u> </u>				MS	MSD													4	+1	4			
W - Water O - Oil	001	B16W88		-	~	~	50	5-703	1050											1	1			
A - Air DS - Drum					2	5/1467																	<u></u>	<u> </u>
Solids DL - Drum																		<u> </u>						
Liquids					1						-			}										
L EP/TCLP Leachate	<u> </u>	1]						
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	<u> </u>					DATE	REVISIO	NS:	<u> </u>	<u> </u>	<u> </u>				l		<u> </u>		Licoud	lle Leb		Use O	<u> </u>	
Special Instruc	uons;	SAF #	F03-	00.0		5-1	4-03	1. Per	Chent	Du	<u>DJ</u>	<u>e = </u>	6-16-	03			. -	amples		.10 [-0]		mper Res		and water
				· <u>-</u>			2 Add Ag. As B. Ba Be B: Cd Cr. Cu by Nife					生 1)	Shippe	ed 🚄	or	1)	Presen	ton O	uter					
? 12 % { 21 /2 % 1 79 /4 #/27 % { 1.1. \ \ 1.7							3 Sb Se / IC = C1 F/ NO, NO, POY SO,						H.	and De	livered 500			Linbroi	-					
1							•					· _	6 El ow Package Ø o			OD o	N							
							4. TAHIN, IPH OLIVH, Obisx, OGCSC, OPCB						2) Ambient or Chilled 3) Received in Good			3)	3) Present on Sample or N							
						5. ODRO, OGRO						ondition			4)	Unbrol								
						6									4 <u>]</u>) Samp	les Preser	ved	S	ample (∑9 or	N		
Relinquished Received Date Time Relinquished						d Received Date Time			me	Discrepancies Between Samples Labels and			Property Preserved or N			C U	COC Record Present Upon Sample Rec't		esent lec't					
by		1 / 1/ /	1	├ ──┤├──	by	120		, by	ORIG	MA	4		COC	ples La Recor	abels a rd? Y	nd or (N)) Recei		thin			Ø .	or N
FEDEX		ed the	5-9-03	0930		AUI			REWR	 11	EN	{	ТОИ	ES:			•	-UNIXIY		or N		ooler emp/	1.5	_ °C
1			{	11							1		791	58	3912	L 85	67							

FH-Central Pl	lateau Project	CI	HAIN OF CUST	ODY/S.	AMPLE	ANALY	(SIS)	REQ	UEST		F03	-006-71	Page 1	of 7
Collector Johansen/Pope/Pfister			Company Contact Telephone No. LC Hulstrom 373-3928				}	Project TRENI	t Coordin:	tor P	rice Code	8N	Data Tur	•
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling			Sampling Location 216-A-37 (C4106); (237.5'-240')					SAF No. F03-006 Air Qua			ir Quality	ir Quality [] 45]		Days ^c
Ice Chest No.	20-01-040	HN	Logbook No. F-N-3361		COA 117504ES	10			d of Ships ral Expres					C1
Shipped To	RECEPT S (Formerly IMA) ALL 4/	22/6) Offsite	e Property No.			<u></u> _	,	Bill of	Lading/A	ir Bill No	. See	059	と	
POSSIBLE SAMPLE I	HAZARDS/REMARKS	7	Preservation	Cool 4C	Cool 4C	Cool 4C	None	e	None					
Special Handling and	dlar Storaga		Type of Container	вG	aG	аG	aG		29					
phecial tranding and	drot Storage		No. of Container(s)	l	1	1	l 1	_ /	(1)					
			Volume	120mL	60mL	120mL	60m	_/_	60mL					
	CAMPIE ANALY	ene.		Chromium Hex - 7196	NO2/NO3 - 353,2	Oil & Grease - 4(3,1	See item (Special Instruction	ù/ }	'ritium - H3					
	Sample analy						1	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		-	Til	17):		
Sample No.	Matrix *	Sample Date	Sample Time											Company of the State of the Sta
B16W88	SOIL	5-7-03	1050	X	X	X	<u> </u>		<u></u>		BIL	WDC	2	
				 		 						 	 	
				 	 			-				<u> </u>		
CHAIN OF POSS		Panelined Bu/St	nt Names	ate/Time		CIAL INST	s to achie	ve a dete	ction limit o	1 50.0 ρ€ί/_ι	4/22/03 for Carbon=14.	** The labor	atory is to	Matrix *
Relinquished By/Remoyed R	Mars 501/31440	330AC		11 B H	repo	rt both kerosen		_						SE=Sediment SO=Solid
Relinquished By/Removed/F	From Date Time 5703 144 U	Received By/St		ate/fime		Cechactium 99 Nickel-63; Ne			= Total Sr; 1 15/2		orium {Thorium-	232}; Carbon	-14 ; lodi ne-	SI=Shadge W = Water O=Oil
Relinquished By/Removed F	rom Date/Time	Received By/St	ored la D	ne/Time		rsonnel not a	availabi	le to	17	7				A=Air DS=Drum Solids DL=Drum Liquids
Relinquished By/Removed F		Received By/St		ate/Time	rei	inquish sam f# <u>fB</u> on	ples from	m the 3	728 <u>0≾</u>					T=Tissue W)=Wipe L=Liquid V=Vegetation
Relinquished By/Removed F FEDEV		Received By/St	ored to 1 // D	Date/Time こり・グゴー	0930									X=Other
Relinquished By/Removed F		Received By/Si	ored in A D	ate/Time										<u> </u>
LABORATORY Re-	ceived By	- <u></u> -		٦	Fitle								Date/Time	
	isposal Method					Dist	oosed By						Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

JENT: THU HANGORD

rchase Order/Project:

DATE: 5-9-03

F#/ SOW# / Release #: 1=03-006

sboratory SDG#: 0305 C372

OTE:	ALL ENTRIES MARKED "NO" MUST BE	EXPLAINED I	N THE COMM	ENT SECTION	ī
1.	Custody seals on coolers or shipping container intact, signed and dated?	ØYes	□ No	D N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	ØÝes	סאם	□ N/A	see Comment #
3.	Airbill # recorded?	Ves	□ No	D N/A	D see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	ØŸes	0K CI	D N/A	□ see Comment#
5.	Sample containers are intact?	Ø Yes	D №	D N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	ÞÝes	□ No.	O N/A	D see Comment #
7.	All samples on coc received?	D Yes	D 740	D N/A	☐ see Comment #
8.	All sample label information matches coc?	Yes Yes	DNo	אא ם •	→ D see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	ØYes	D No	DNA	D see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	BYes	D №	□ N/A	□ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	□ Yes	□ No	EJNIA	D see Comment #
12.	coc signed and dated?	D Yes	□ No	□ N/A	. 🗀 see Comment #
13.	coc will be faxed or emailed to client?	E Yes	D 740	D N/A	□ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	□ No	AINE	D see Comment #

Cooler # / temp (°C) and Comments:

1.5° ERC 01 -040

Laboratory Sample Custodian:

Laboratory Project Manager:

DATE RECEIVED: 05/03/03 LVL LOT # :0305L339

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W84	001	s	03LE0576	04/30/03	05/14/03	05/21/03
B16W85	002	S	03LE0576	04/30/03	05/14/03	05/21/03
LAB QC:						
PBLKTS PBLKTS	MB1 MB1 BS	s s	03LE0576 03LE0576	N/A N/A	05/14/03 05/14/03	05/22/03 05/22/03

Apr 61.7/3



LVL LOT # :0305L357 DATE RECEIVED: 05/07/03 LVL # MTX PREP # COLLECTION EXTR/PREP ANALYSIS CLIENT ID 001 S 03LE0576 05/05/03 05/14/03 05/22/03 B16W86 S 03LE0576 05/14/03 05/22/03 B16W86 001 MS 05/05/03 B16W86 001 MSD S 03LE0576 05/05/03 05/14/03 05/22/03 LAB QC: S 03LE0576 N/A 05/14/03 05/22/03 PBLKTS MB1 05/22/03 05/14/03 N/A **PBLKTS** MB1 BS S 03LE0576

DATE RECEIVED: 05/08/03 LVL LOT # :0305L366

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W87	001	s	03LE0576	05/06/03	05/14/03	05/22/03
LAB QC:						
						
PBLKTS PBLKTS	MB1 MB1 BS	s s	03LE0576 03LE0576	N/A N/A	05/14/03 05/14/03	05/22/03 05/22/03

984 G/17/13

DATE RECEIVED: 05/09/03

LVL LOT # :0305L372

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W88	001	so	03LE0576	05/07/03	05/14/03	05/22/03
LAB QC:						
PBLKTS	MB1	s	03LE0576	N/A	05/14/03	05/22/03
PBLKTS	MB1 BS	S	03LE0576	N/A	05/14/03	05/22/03

gardings



Analytical Report

Client: TNU-HANFORD F03-006 LVL #: 0305L339, 0305L357,

0305L366, 0305L372

W.O. #: 11343-606-001-9999-00 Date Received: 05-03,07,08,09-2003

SDG/SAF # H2195/F03-006

PCB

Five (5) soil/solid samples were collected on 04-30-2003 and 05-05,06,07-2003.

The samples and their associated QC samples were extracted on 05-14-2003 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 05-21,22-2003. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. The required holding time for extraction and analysis was met.
- 3. Samples and their associated QC samples received a Sulfuric Acid and Sulfur cleanup.
- 4. The method blank was below the reporting limits for all target compounds.
- 5. All surrogate recoveries were within acceptance criteria.
- 6. The blank spike recoveries were within acceptance criteria.
- 7. All matrix spike recoveries were within acceptance criteria.
- 8. All initial calibrations associated with this data set were within acceptance criteria.
- 9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Madager

Lionville Laboratory Incorporated

Date

som\r:\group\data\pest\tnu hanford\0305-339,357,366,372.pcb

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 2 4 pages.



GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.



GLOSSARY OF PESTICIDE/PCB DATA

- This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- This flag applies to a compound that has been confirmed by GC/MS.

PCBs by GC

Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L339 α PBLKTS BS B16W85 PBLKTS B16W84 Cust ID: 03LE0576-MB1 001 002 03LE0576-MB1 RFW#: Sample SOIL SOIL Matrix: SOIL SOIL Information 1.00 1.00 1.00 D.F.: 1.00 UG/KG UG/KG UG/KG UG/KG Units: ş. 옿 105 ş 100 Decachlorobiphenyl 80 ¥ 100 Surrogate: 85 옿 85 왐 80 왉 90 Tetrachloro-m-xylene 16 U 15 U 92 16 U Aroclor-1016 15 U 16 U 16 U 15 U Aroclor-1221 16 U 15 U 15 U 16 U Aroclor-1232 15 U 16 U 15 U 16 U Aroclor-1242 16 U 16 U 15 U 15 U Aroclor-1248 15 U 16 U 15 U 16 U Aroclor-1254 15 U 94 % 16 U 16 U Aroclor-1260

Afray N.

Report Date: 06/17/03 15:49

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

PCBs by GC Report Date: 06/17/03 15:49© RFW Batch Number: 0305L357 Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1

	Cust ID:	B16W86	5	B16W86	;	B16W86		PBLKTS		PBLKTS BS		
Sample	R FW# :	001	L	001 MS	3	001 MSD	,	03LE0576-M	B1	03LE0576-1	Œ1.	
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
_	D.F.:	1.0	00	1.0	00	1.0	0	1.0	0	1.0	00	
	Units:	UG/I	KG	UG/I	(G	UG/K	G	UG/K	(G	UG/E	ΚG	
Surrogate:	Decachlorobiphenyl	110	*	95	8	100	8	105	*	100	*	<u> </u>
_	Tetrachloro-m-xylene	90	8	80	ક	85	왕	85	*	85	%	
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Aroclor-1016		16	U	87	8	96	ક	15	U	92	8	
Aroclor-1221		16	U	16	U	16	U	15	U	15	Ü	
Aroclor-1232		16	U	16	U	16	U	15	U	15	U	
Aroclor-1242		16	U	16	Ü	16	U	15	U	15	U	
Aroclor-1248		16	ט	16	U	16	U	15	U	15	U	
Aroclor-1254		16	U	16	U	16	Ū	15	U	15	U	
Aroclor-1260		16	Ū	92	왕	99	કૃ	15	U	94	૪	

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U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

PCBs by GC

Report Date: 06/17/03 15:50 RFW Batch Number: 0305L366 Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1 Cust ID: B16W87 PBLKTS BS PBLKTS Sample RFW#: 001 03LE0576-MB1 03LE0576-MB1 Information Matrix: SOIL SOIL SOIL D.F.: 1.00 1.00 1.00 Units: UG/KG UG/KG UG/KG Surrogate: Decachlorobiphenyl 110 105 옿 100 ક્ષ Tetrachloro-m-xylene 95 옿 85 왕 85 Aroclor-1016 15 U 15 U 92 Aroclor-1221 15 U 15 U 15 U Aroclor-1232 15 U 15 U 15 U Aroclor-1242 15 U 15 U 15 U Aroclor-1248 ______ 15 U 15 U 15 U Aroclor-1254 15 U 15 U 15 U Aroclor-1260 15 U 15 U 94 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

PCBs by GC

Report Date: 06/17/03 15:50 Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L372

	Cust ID:	B16W88	3	PBLKTS		PBLKTS BS		
Sample	RFW#:	001	L	03LE0576-1	Œ1	03LE0576-N	B 1	
Information	Matrix:	SOLID		SOIL		SOIL		
	D.F.:	1.0	00	1.0	00	1.0	0	
	Units:	UG/F	ΚG	UG/I	(G	UG/K	G	
Surrogate:	Decachlorobiphenyl	105	¥	105	%	100	*	
	Tetrachloro-m-xylene	85	윰	85	ક્ષ	85	*	
		F======	==fl		==f1		=fl=	=====f1======f1=====f1======f
Aroclor-1016		15	U	15	U	92	४	
Aroclor-1221		15	U	15	Ü	15	Ų	
Aroclor-1232		15	U	15	U	15	U	
Aroclor-1242		15	U	15	U	15	U	
Aroclor-1248		15	ប	15	U	15	U	
Aroclor-1254		15	U	15	U	15	Ū	
Aroclor-1260		15	U	15	U	94	૪	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory Use Only

Custody	Transfer	Hecord/Lab	WORK	Request	Page

0305L339

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TWU Handord

irchase Order/Project:

DATE: 5-3.03

4F#/ SOW# / Release #: F03.006

aboratory SDG #:

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping D No DNA see Comment # container intact, signed and dated? Outside of coolers or shipping containers are D.Yes O No DWA ☐ see Comment # free from damage? Airbill # recorded? D)Yes D No D N/A Sec Comment # All expected paperwork received (coc and D No D N/A other client specific: historical data ☐ see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? D No DN/A ☐ see Comment # Custody seals on sample containers intact, D N/A □ No ☐ see Comment # signed and dated? All samples on coc received? D No D N/A D see Comment # X Yes D No D see Comment # All sample label information matches coc? D N/A Laboratory QC samples designated on coc? D Yes D No D'N/V D see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance Yes Yes □ No D N/A ☐ see Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes D No ₽N/A 🗆 see Comment # affixed to coc? ŠD Yes D No D N/A 12, coc signed and dated? D see Comment # 13. coc will be faxed or emailed to client? Yes. D No DNA D see Comment # 14. Project Manager/Client contacted EZ N/A ☐ Yes D No D see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC 01-038/0.6"

Laboratory Sample Custodian:

Laboratory Project Manager:

D. Smith

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Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

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CIEL D DEDGONNEL - COMPLETE ONLY SHADED AREAS

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S - Soil SE - Sediment	10	Clie	nt ID/Descri	ption		/)	Matrix	Collected	Collected		ļ	}				1	ļ	ļ	#C/66	INJAZ	T066R	1		}
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1	3 at	hac for i	L339.33	57.366.37	Z			3. Pb. S	6. Se/	IC.	: <u>c/</u>	FII	W;	M,	POx.	50 v	Aiı	nbill # _			2) Unbrok	ken on	Outer
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EOCX	P	2. M. WELL	27.05	+		PAR		R	EWRI	IIt	N.	$\neg \neg$	"	. =.0.					0	or N	7	Гетр. <u>.</u>	K varah	°C

FH-Central F	Plateau Project	С	HAIN OF CUST	ODY/S	AMPLE	ANAL	YSIS	REQUEST	`	F0	3-006-69	Page 1	of 1
Collector Johansen/Pope/Pfister	,	Comp	pany Contact Hulstrom	Telepho 373-3	ne No.			Project Coordi TRENT, SJ		Price Code	8N	Data Tur	
Project Designation	OU - Borehole Soil Sampling		pling Location 6-A-37 (C4106); (147.5'-1	150')				SAF No. F03-006		Air Quality	/ []	45 I	Days
Ice Chest No	RC-01-063		Logbook No. NF-N-3361		COA 117504ES	10		Method of Ship Federal Expre				. <u></u>	
Shipped To	RECKA 15/2 ES (Formerly TWIA) 4/22	Offsi	te Property No.	9030	222			Bill of Lading/	Air Bili	No. SE	E OSF	~	
POSSIBLE SAMPLE	HAZARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	ne None					
Tiet	O B16 WPO		Type of Container	aG	₽G	aG	aG	-					
Special Handling an	nd/or Storage		No. of Container(s)	1	1	ī	1	1/-			<u> </u>		
	20011		Volume	120mL	60mL	120mL	60m	ıL 60mL					
	SAMPLE ANAL	YSIS	-	Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Speci Instruct	ial/					
							N.	dlord			Tieto:		
Sample No.	Matrix *	Sample Date	Sample Tune										
B16W86	SOIL	5/5/3	0900	1	+	 	₩_	- ·			Bloke	- BILL	208
				 	 -	 	 					 	
ļ					1								
CHAIN OF POS		Sign/Pri Received By/St	int Names	ate/Time	••-	CIAL INSTI	s to achie	ve a detection time.	£ 50:0-p€	4/22/03 Sug for Carbon 14	** The labora	tory is to	Matrix *
Relinquished By/Removed I			1A 5-5-03	131	герог	rt both kerosen	e and die:	sel range compound:	from W	TPH-D analysis.		-	S=Soil SE=Sodiment SO=Solid
Relinquished By/Removed I		Received By/Si		Sate/Time /		rechnetium-99; Nickel-63, Ne		m-89,90 - Total Sr. 237 A.S.A.			=232); Carbon=	4, lodine-	SI=Sindge W = Water
Relinquished By/Removed I	From Date/Time 1000	Received By/S	toged in	ate/Time					772	•/•)			O=Oil A=Air DS=Drum Solids
Relinquished Hy/Removed	From Date/Time		ate/Time		Personnel relinquish	sample	s from the 3728	=	= .			DL=Drum Liquids T=Tissue	
Relinquished Hy/Removed Relinquished By/Removed Relinquished By/Removed	5.7.03 /10 10 From Date/Time		3 10 / 6	2	Ref#_ <i>1_6</i>	<u>⊬</u> on <u></u>	5 16 103					L=Liquid V=Vegetation X=Other	
		Received By/S	ioted III)ate/Time									A-CABE!
Relinquished By/Removed I	From Date/Time	Received By/3								-			
LABORATORY RESECTION	sceived By				üle ————						<u> </u>	Date/Time	
FINAL SAMPLE D DISPOSITION	isposal Method					Disp	osed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

JENT: TNU Hanford

rchase Order/Project:

DATE: 5.7.03

F# DSOW# / Release #: FO 3-00L

sboratory SDG #:

TRIES MARKED "NO" MUST BE E

1.	Custody seals on coolers or shipping container intact, signed and dated?	OCY es	D No	D N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	D.Yes	D No	A/A	🖸 see Comment #
3.	Airbill # recorded?	Yes :	□ No	D N/A	□ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	T Yes	□ No	□ N/A	D see Comment #
5.	Sample containers are intact?	\ Ø Yes	D No	D N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	yes .	D No.	AWG	D see Comment #
7.	All samples on coc received?	Die	□ No	□ N/A	· D see Comment #
8.	All sample label information matches coc?	. TO Yes	D No	DNA.	see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	TVes .	D No	DNA	D see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	EX.Yes	□ No	A/A CI	D see Comment #
11.	Where applicable, bar code labels are affixed to coc?	D Yes	D No	ONIA	☐ see Comment #
12.	coc signed and dated?	Yes	□ No	□ N/A	D see Comment #
13.	coc will be faxed or emailed to client?	TYes-	□N ₀	D N/A	🗅 see Comment i
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	^ □ Yes	_ □ No	BNA	D sec Comment i

Cooler # / temp (°C) and Comments:

Elc-01-063 /2.3"

Laboratory Sample Custodian:

Laboratory Project Manager:

Danien

Custody Transfer Record/Lab Work Request Page 1 of 1 Lionville Laboratory Use Only FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS 03051366 Refrigerator # Client _ TNU-Hamford F03-00L Liquid Est. Final Proj. Sampling Date ___ #/Type Container Solid Project # 11343-606. 001-999-00 Liouid Prolect Contact/Phone # ___ Volume Lionville Laboratory Project Manager Dolette 1 alander Solid 190 Preservatives OC _ SPEC **INORG** ORGANIC 6-14-03 **ANALYSES** REQUESTED Date Rec'd 5 8 03 16-7-03m Date Due _ Lionville Laboratory Use Only Matrix MATRIX QC CODES: Z Date Time Lab Chosen Y COY Matrix Client ID/Description S - Soil Collected Collected (V) SE - Sediment SO - Solid MS MSD SL - Sludge W - Water 15.600 109.45 BULLDAT COL 0 - Oil A - Air DS - Drum Solids DL - Drum Liquids EP/TCLP Leachate WI - Wipe X - Other F - Fish

				<u> </u>	<u> </u>						
Special Instructions:	SAF #	Fo3	-006	DATE/	revisions:	المتأ	on Day	e : (-16-03		
Botch	QC &r L33	39, 357,	366,37		2. A1J: A 3. N: Pb 4. INHSN	Sb.Se	/cc:cl	F1, NO3,	W.Po	4, SO.	¥
					5. ODRU	OFR	0				
D-11	Decelored.			D-12-a-data-d	Received			<u> </u>			
Relinquisthed (Received	Date	Time	Relinquished	Heceived	n	ate a L The	me III	Discrepancio	ıs Betwe	en

Hand Delivered _ Airbill # ___ 7907 7425 9278 2) Ambient or (Filled) 3) Received in Good Condition (27) or N

Samples were:/

1) Shipped 🗸

4) Samples

Properly Preserved

5) Received Within Holding Times (Y) or N

Samples Labels and COC Record? Y or N

NOTES:

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N

Lionville Laboratory Use Only

2) Unbroken on Outer Package O or N

3) Present on Sample On or N

4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Ÿ) or N

Cooler Temp. 2.0 °C

Relinquished Time

Relinquished

Collectory Content Company Contact Telephone No. Tree Coof and Confidence of Tree Coof and Confidence of Telephone No. Tree Coof and Coof	FH-Central Plates	au Project	CH	IAIN OF CUST	ODY/S	AMPLE	EANALY	YSIS	REQUEST		F03	-006-70	Page 1	of 1
Project Designation Sampling Location Sampling Location Sampling Location Sampling Location Sampling Sampli	Collector		Compa	ny Contact	Telepho	ne No.	·		Project Coordi:	nator	Price Code	8N		
Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter Shipped To Letter	Project Designation	Borehole Soil Sampling	Sampli 216-	ing Location A-37 (C4106); (197.5'-2	200')	···					Air Quality		45 1	Days
FOSSIBLE SAMPLE BLAZARDSREMARKS For To BIGWDO Special Handling and/or Storage Off 1 4°C Type of Container is 0 is 0 is 0 is 0 is 0 is 0 is 0 is	F.K-C.	. 99.022	HNE				310							
FOSSIBLE SAMPLE BLAZARDSREMARKS For To BIGWDO Special Handling and/or Storage Off 1 4°C Type of Container is 0 is 0 is 0 is 0 is 0 is 0 is 0 is	Shipped To ERERLINE SERVICES (Fo	MERA merly TMA) Agr 4/2	offsite	Property No.	A03E	22	>	r	Bill of Lading/	Air Bill	No. SE	E-B	PC	
Special Handling and/or Storage No. of Container(s) Volume 120ml Volume 120ml 12	POSSIBLE SAMPLE HAZA	ARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	ne None					
No. of Container(s) 120ml 60ml 60ml 120ml 6	• •			Type of Container	aG	aG	aG	аG	39					
SAMPLE ANALYSIS Sample No. Matrix * Sample Date Sample Time B16W87 SOIL 5 1 63 0 945 CHAIN OF POSSESSION Relinquished By/Removed From Part Chair Source of Source	Special Handling and/or S	storage	ļ	No. of Container(s)	<u> </u>		<u> </u>	<u> </u>	1 /60=1					
Sample No. Matrix * Sample Date Sample Time B16W87 SOIL 5 6 9 945 CHAIN OF POSSESSION Sign/Prist Names Entireplated By/Removed From Prior Date/Time Received By/Stored In Date/Time Date/Time				Volume					<u> </u>					
Sample No. Matrix * Sample Date Sample Time B16W87 SOIL 5 1		CAMDIFANAI V	116					Speci	ù /}					
Sample No. Matrix * Sample Date Sample Time B16W87 SOIL SILUDO CHAIN OF POSSESSION Relinquished ByRamoyet From Matrix * Date/Time Received By/Stored In Date/Time A 372 SILUDO Relinquished ByRamoyet From Date/Time Relinquished ByRamoyet From Date/Time Relinquished ByRamoyet From Relinquished ByRamoyet From Date/Time Received By/Stored In Date/Time Received By/Stored In Date/Time Received By/Stored In Date/Time Received By/Stored In Date/Time Received By/Stored In Date/Time Date/Time Received By/Stored In Date/Time Date/Time Received By/Stored In Date/Time Received By/Stored In Date/Time Date/Time Date/Time Received By/Stored In Date/Time Date/Time Date/Time Date/Time Received By/Stored In Date/Time Date/Time Date/Time Date/Time Received By/Stored In Date/Time Date/T		Samile anal 13	, da					AY	ilva (Tie To:			
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Relinquished By/Removed From Date/Time D	CHAIN OF POSSESSI	ON	Sign/Prin	t Names	<u>.</u>	Spe	CIAL INST	PUCTO	ONS ACA	1	(2)///	<u> </u>	<u> </u>	Matrix *
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Relinquished By/Removed From Date/Time Received By/Stored In Personnel not available to relinquish samples from the 3728 Relinquished By/Removed From Date/Time Received By/Stored In Personnel not available to relinquish samples from the 3728 Relinquished By/Removed From Date/Time Received By/Stored In Personnel not available to relinquish samples from the 3728 Ref #/ Pon 5/7/03 Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Date/Time Date/Time Date/Time Date/Time Disposed By Date/Time	Relinquished By/Removed From	Date/Time 1000	Received By/Stor	red in	ate/Time	10000	Technehum-99;	Strontil	m-89,90 - Total Sr;			232); Carbon	14, todine	SO=Solid SI=Sludge
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LABORATORY Received By Title Date/Time SECTION Disposed By Date/Time	<u> </u>	· · · · · · · · · · · · · · · · · · ·	<u> </u>	·										X=Other
SECTION FINAL SAMPLE Disposal Method Disposed By Date/Time	Relinquished By/Removed From	Date/Time	Received By/Sio	rea in								<u> </u>		<u> </u>
		Ву	_		· ·	Title							Date/Time	
		Method					Disp	osed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

JENT: TNU Hanford

rchase Order/Project:

DATE: 5-8-03

1F#) SOW# / Release #: FO3 - OOL

aboratory SDG #:

ΓE:	ALL ENTRIES MARKED "NO" MUST BE I	EXPLAINED I	N THE COMM	ENT SECTION	<u> </u>
1.	Custody seals on coolers or shipping container intact, signed and dated?	DY es	. DNo .	D N/A	D see Comment
2.	Outside of coolers or shipping containers are free from damage?	byes	DNo	D N/A	🖸 see Comment (
3.	Airbill # recorded?	TYES	□ No	DNA	D see Comment
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	to yes	D No	D N/A	D see Comment
5.	Sample containers are intact?	Þ ≯Yes	□ No	D N/A	D see Comment
.	Custody seals on sample containers intact, signed and dated?	To Yes	E) No.	D N/A	🗆 see Comment
7.	All samples on coc received?	Yes	D 740	DNA	· Disce Comment
3.	All sample label information matches coc?	Yes	O No	D N/A	D see Commen
),	Laboratory QC samples designated on coc? (QC stickers placed on bonles?)	Yes	□ No	NA	D see Commen
0.	Shipment meets LvLl Sample Acceptance Policy? (identify all bonles not within policy. See reverse side for policy)	y es	D No	D N/A	🗅 see Commen
1.	Where applicable, bar code labels are affixed to coc?	D Yes	D No	AIKE	🗆 see Commet
2.	coc signed and dated?	DY es	D No	□ N/A	D see Comme
3.	coc will be faxed or emailed to client?	W Yes-	□ No	DNA	D see Comme
	Project Manager/Client contacted concerning discrepancies? (name/date)	D Yes	D No	E N/A	D see Comme

Cooler # / temp (°C) and Comments:

ERC 99-022 /2.00

Laboratory Sample Custodian:

Laboratory Project Manager:

D (mich)

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page of _____

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS



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SE - Sediment SO - Solid	"				<u> </u>					}	}	}]	}	1		2.ch6	3	9	, 1		
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A - Air DS - Drum	<u></u>	<u> </u>	<u> </u>		3	<i>r</i> j.,,			 _	 -	} -	├	 -	-						-		├		
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13	atch	QC For 1339	357,36	6,372													Ha	and De	livered ウェ		P	ackage	(E) or	N
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FH-Central	Plateau Project	CI	CHAIN OF CUSTODY/SAMPLE ANALYS					REQUEST F03-006-			3-006-71	71 Page 1 of 1	
Collector Johansen/Pope/Pfiste		Compa	nny Contact Hulstrom	Telepho 373-3	ne No.			Project Coordi TRENT, SJ	nator	Price Code	8N	Data Turi	,
Project Designation 200-PW-2/200-PW-4	4 OU - Borchole Soil Sampling		ing Location -A-37 (C4106); (237.5'-2	40')				SAF No. F03-006		Air Quality		451	Days
Ice Chest No.	PC-01-04/0	HN	Logbook No. F-N-3361		CO.A 117504E	S10		Method of Ship Federal Expre		·			6
Shipped To	RECFA CES (Formerly TMA) ALL 4	Offsite	e Property No.				·	Bill of Lading	Air Bill	No. 522	050	<u>ت</u>	,
POSSIBLE SAMPLI	E HAZARDS/REMARKS	7-3	Preservation	Cool 4C	Cool 4C	Cool 4C	Nor	ne None					
Cassial Handling	and/or Storage		Type of Container	aG	aG	aG	aC	3 a	-				
Special Handling a	and/or Storage		No. of Container(s)	1	1	1	1	1 / 1	<u> </u>		<u> </u>	ļ	
			Volume	120mL	60mL	120mL	60n				<u> </u>		
	SAMPLE ANAL	veie		Chromium Hex - 7196	NO2/NO3 353,2	- Oil & Grease - 413.1	See item Spec Instruc	<u>≐a</u> '/ }					
	SAMPLE ANAL	1313					14						
Courte Ma	Matrix *	Sample Date	Sample Time	Section 1995		meganide koestij	l Vy		granda.	7ic	10:		
Sample No.	SOIL	5-7-03		χ	X	X	7		76.1571	Bu	IWDC)	AND THE PROPERTY OF
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	···						-		╂		-	 	
CHAIN OF PO	SSESSION	Sign/Pri				ECIAL INSTI	RUCTI	ONS	78/	4/22/03	A	<u></u>	Matrix *
Relinquished By/Removed	170m/6 5171/31440	Received By/Str	ored in Sal 6	INB H	p40 10	port both kerosen	is to achi is and dis	eve a detection limit esel range compound	is from W	TPH-D analysis.	. ** I ne labor	atory is to	S=Soli SE=Sediment SO=Solid
Relinquished By/Removed	deFrom Date Time	Received Bu/St		ate/Time	\neg). Technetium-99 29; Nickel-63; Ne		im-89,90 - Total Sr -237 - 275/		Thorium (Thorium	-232); Carbon	ाव , todi ne-	Si=Sindge W = Water O=Oil
Relinquished By/Remove	d From Date/Time	Received By/St	ored In	ate/Time		Personnel not a	availabi	17		7-7			A=Atr DS=Drum Solids DL=Drum Liquids
3728 Ref		Received By/St	ored in D	ate/Time	<u> </u>	relinquish sam Ref# <u>IB</u> on	ples fro	om the 3728					T=Tissue WI=Wipe L=Liquid
Relinquished By/Remove	ed From Date/Time	Received By/St	oled yill y	ate/Time									V=Vegetation X=Other
FEDEY Relinquished By/Remove	5-9-03 093 ed From Date/Time	Received By/St		ate/Time	<i>V/39</i>								
Landouni Carr	Received By				Title							Date/Time	<u> </u>
SECTION FINAL SAMPLE	Disposal Method					Dis	posed By	,	,			Date/Time	
DISPOSITION						- <u>-</u>	<u>. </u>						

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

JENT: THU HANGED

rchase Order/Project:

DATE: 5-9-03.

F#/SOW#/Release#: [=03-006

boratory SDG#: 03054372

OTE:	ALL ENTRIES MARKED "NO" MUST BE	EXPLAINED I	THE COMM	ENT SECTION	I
1.	Custody seals on coolers or shipping container intact, signed and dated?	ØYes	□ No	DNA	D see Comment#
2.	Outside of coolers or shipping containers are free from damage?	⊠Ýes	D No	D N/A	🛭 see Comment #
3.	Airbill # recorded?	Ø Yes :	D No	D N/A	See Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	Ø Yes	□ No	D N/A	D see Comment #
5.	Sample containers are intact?	Ø Yes	. אס	D N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	D∕Ýes 	D No.	D N/A	D see Comment #
7.	All samples on coc received?	12 Yes	D No	D N/A	D see Comment #
8.	All sample label information matches coc?	₽ Yes	D No	D N/A	ace Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	ØYes	D No	D N/A	D see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	BY.cs	□ No	D N/A	See Comment #
11.	Where applicable, bar code labels are affixed to coc?	□ Yes	□ No	BNA	D see Comment #
12.	coc signed and dated?	D Yes	DNo	D N/A	O see Comment #
13.	coc will be faxed or emailed to client?	☑ Yes•	D №	D N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	□ No	MNA	D see Comment #

Cooler # / temp (°C) and Comments:

1.5° ERC 01 -040

Laboratory Sample Custodian:

Laboratory Project Manager:

DATE RECEIVED: 05/03/03

LVL LOT # :0305L339

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
					· · · · · · · · · · · · · · · · · · ·	
B16W84	001	s	03LE0578	04/30/03	05/14/03	05/14/03
B16W85	002	S	03LE0578	04/30/03	05/14/03	05/14/03
LAB QC:						
BLK	MB1	S	03LE0578	N/A	05/14/03	05/14/03
BLK	MB1 BS	s	03LE0578	N/A	05/14/03	05/14/03



face wood

DATE RECEIVED	: 05/07/03		LVL LOT # :0305L357							
CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS				
B16W86	001	s	03LE0578	05/05/03	05/14/03	05/14/03				
LAB QC:										
BLK	MB1	s	03LE0578	N/A	05/14/03	05/14/03				
BLK	MB1 BS	S	03LE0578	N/A	05/14/03	05/14/03				

Bus 14/15

DATE RECEIVED: 05/08/03

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W87	001	s	03LE0578	05/06/03	05/14/03	05/14/03
B16W87	001 MS	s	03LE0578	05/06/03	05/14/03	05/14/03
B16W87	001 MSD	S	03LE0578	05/06/03	05/14/03	05/14/03
LAB QC:						
BLK	MB1	s	03LE0578	N/A	05/14/03	05/14/03
BLK	MB1 BS	S	03LE0578	N/A	05/14/03	05/14/03

Bululy

LVL LOT # :0305L366

DATE RECEIVED: 05/09/03

LVL LOT # :0305L372

CLIENT ID	LVL #	мтх	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W88	001	so	03LE0578	05/07/03	05/14/03	05/14/03
LAB QC:						
BLK	MB1	S	03LE0578	N/A	05/14/03	05/14/03
BLK	MB1 BS	S	03LE0578	N/A	05/14/03	05/14/03

ASUR 16/13



Analytical Report

Client: TNU-HANFORD F03-006 **LVL #:** 0305L339, 0305L357,

0305L366, 0305L372

W.O. #: 11343-606-001-9999-00 Date Received: 05-03,07,08,09-2003

SDG/SAF # H2195/F03-006

GC SCAN

Five (5) soil/solid samples were collected on 04-30-2003 and 05-05,06,07-2003.

The samples and their associated QC samples were prepared according to method 3580A (waste dilution-1g into 5mL) on 05-14-2003 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedure, method 8015B on 05-14-2003 for Methanol, Ethyl Ether and 1-Butanol.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. Samples were extracted and analyzed within required holding time.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. Surrogates are not currently employed in the methodology.
- 5. All blank spike recoveries were within acceptance criteria.
- 6. All matrix spike recoveries were within acceptance criteria.
- 7. All initial calibrations associated with this data set were within acceptance criteria.
- 8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

Date

r:\group\data\gcsc\tunu\0305w339x,357x,366x,372x.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 2 4 pages.



GLOSSARY OF GC SCAN DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- **DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- **DF** = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.



GLOSSARY OF GC SCAN DATA

- P = This flag is used for an GC SCAN target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C = This flag applies to a compound that has been confirmed by GC SCAN.

GC SCAN

Report Date: 06/15/03 12:56 \(\)

	Cust ID:	B16W84	B16W85	BLK	BLK BS	
Sample	RFW#:	001	002	03LE0578-MB1	03LE0578-MB1	
Information	Matrix:	SOIL	SOIL	SOIL	SOIL	
·	D.F.:	1.00	1.00	1.00	1.00	
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	
		fl=	======f)		l=====f1==	flfl
Methanol		24 U	24 U	25 U	101 %	
Ethyl Ether		24 U	24 U	25 U	86 %	
1-Butanol		24 U	24 U	25 U	94 %	

Hu c/16/1

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

GC SCAN

1.00

Report Date: 06/15/03 12:56

 RFW Batch Number: 0305L357
 Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1

 Cust ID:
 B16W86
 BLK BS

 Sample
 RFW#:
 001
 03LE0578-MB1

 Information
 Matrix:
 SOIL
 SOIL

 SOIL
 SOIL

	Units:	mg/kg	mg/kg	mg/kg	
		f1	======f1==	======fl===	======fl======fl=======fl
Methanol		23 U	25 U	101 %	
Ethyl Ether		23 U	25 U	86 %	
1-Butanol		23 U	25 U	94 %	

1.00

1.00

D.F.:

Amalialo

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Report Date: 06/15/03 12:57 GC SCAN Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1 REW Batch Number: 03051366

	Cust ID:	B16W87		B16W8	7	B16W87	7	BLK		BLK BS		
Sample	RFW#:	001		001 M	s	001 MSI	D	03LE0578-M	B1	03LE0578-M	Œ1	
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
	D.F.:	1.0	0	1.	00	1.0	00	1.0	0	1.0	00	
	Units:	mg/k	g	mg/	kg	mg/l	kg	mg/kg	9	mg/k	rg	
=======================================			=fl==		==fl==	.======	==fl	========	=f1		=f1	=======f
Methanol		26	U	101	ક્ષ	99	*	25	U	101	ક્ષ	
Ethyl Ether		26	U	81	*	83	ક	25	U	86	*	
1-Butanol		26	U	97	*	97	*	25	U	94	४	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

GC SCAN

Report Date: 06/15/03 12:57

	Cust ID:	B16W88	BLK	BLK BS	
Sample	RFW#:	001	03LE0578-MB1	03LE0578-MB1	
Information	Matrix:	SOLID	SOIL	SOIL	
	D.F.:	1.00	1.00	1.00	
	Units:	mg/kg	mg/kg	mg/kg	
***********		======f	l=====================================	l=====f	l=======fl=======fl===================
Methanol		22 U	25 U	101 %	
Sthyl Ether		22 U	25 U	86 %	
1-Butanol		22 U	25 U	94 %	

gardals

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionvilla	Lab	oratoni	Hoo	Oak
Lionville	Lab	oratory	OSE	Only

Custody Transfer Record/Lab Work Request Page _____ of ____

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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Project Conta	ct/Pho	ne #		· · · · · · · · · · · · · · · · · · ·			- Volum	8	Liquid														\perp	
Lionville Labo	ratory	Project Manager	Orl	ette 9	oh	<u>ww</u>			Solid									1	20	(O)	190			├ —-
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S - Soil SE - Sediment	ID	Clie	nt ID/Descri	ption	1	(√)	Matrix	Collected		ł	}		}					1	TCRI	Z-603 A	TOGGR	; }		
SO - Solid		1			-	MS MSI	5	}		l	<u> </u>								й	র	ដ			
SL - Sludge W - Water	30	BILLING	34				5	4-3003	0900										X	Х	Χ		1	
A - Air	8	BILOWE					11	L	1238										X	X	Х	<u> </u>		
Solids	000	. D. V. W. C	<u> </u>				1	1	 														1	
DL - Drum Liquids	}	 					 	1.			1													
L - EP/TCLP Leachate	}	 			 }		 			-		-	7.		-								1	1
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Bot	uh (JC for 1339	1,357,	366.37	12			3. N. P	-					•	-		_ 1 /4	076		377		Unbrok ckage (
								4. INH31	VIPH	04	14 45	. 06	rs x	,04	CSC,	0/((1	Ambient	•			Present	t on Sa	ample
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Relinquishe	d	Received			Rel	nquistre	,	Received	1	Date	T2	me	Disc	repand	es Bet	ween	Pro	operty Pr	reserv		C	OC Rec	ord Pr	esent
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FH-Central Plateau Project	CH	AIN OF CUST	ODY/S	AMPLI	E ANAL	YSIS	REQUEST	_	FUS	-000-07		<u> </u>
Collector Johansen/Pope/Pfister	Compan LC Hu	y Contact distrom	Telepho 373-3				Project Coordinat TRENT, SJ	or Price	Code	8N		rnaround
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		g Location -37 (C4106); (72.5'-75	j')('i				SAF No. F03-006	Air C	Quality		45	Days
Ice Chest No. ERC -01.038	Field Lo HNF-1	gbook No. N-3361		COA 117504ES	510		Method of Shipme Federal Express	nt				·
Shipped To EBERLINE SERVICES (Formerly TMA) ASIC 4/14/6. POSSIBLE SAMPLE HAZARDS/REMARKS	Offsite P	Property No.	103	9 22	-1		Bill of Lading/Air	Bill No.	S£	EE	5 PC	
POSSIBLE SAMPLE HAZARDS/REMARKS Rodioce f. ve		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None				:	
Tie TO BIGWDO		Type of Container	aG	aG	aG	aĢ	aC/					
Special Handling and/or Storage		No. of Container(s)	1	1	1	ı	/					
		Volume	120mL	60mL	120mL	60m	L 60mL					
SAMPLE ANALYSIS			Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Special Instruction	u/					
Sami Le anal 1313						N	dish		Tieti)! 		
	ole Date	Sample Time	L									
B16W84 SOIL 4-3	30-03	1900	+	1	1 ×	<u> </u>		P	باعالط	∞		
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Relinquished By/Rentoved From Date/Time Receiv		RANS 430	de/Time 03 143 de/Time 16	repo	rt both kerosene	and dies	ONS or a detection limit of 50 el range compounds from 1-89.90 — Total Sr. Isoto	n WTPH-D and	arbon 14 , ' alysis.		•	Matrix * S=Soil SE=Sediment SO=Solid Si=Sludge
Refinquished By/Removed From Date/Time 1000 Received 13 3728 5.2-03	5_3	72 <u>9 4:</u>	<u>۲۰۰۰ ک</u>	129 ,	Niekel- 63; Nep			4/22				W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids
Relinquished By/Removed From 52 Date/Time 100 D Receiv	ed By/Stored	la Da	te/Fime				•					T=Tissue Wi=Wipe L=Liquid V=Vegetation
Reliablished By/Resolved From Date/Pline Received From 5 3 U 3 11: UC	ed Dynkton A	With 5.3	te/Time	لع ا								X=Other
Relinquished By/Removed From Date/Time Receiv	ed By/Stored	In Da	te/Time				· 					
LABORATORY Received By SECTION	<u>-</u>		Ti	ile						D	ate/Time	
FINAL SAMPLE Disposal Method DISPOSITION					Dispo	sed By				D	ate/Time	

FH-Central P	lateau Project	C	HAIN OF CUST	ODY/S	AMPL	E ANALY	YSIS	REQUEST		F03	-006-68	Page 1	of 1
Collector Johansen/Pope/Pfister			any Contact Hulstrom	Telephon 373-39				Project Coordin TRENT, SJ	ator	Price Code	8N		rnaround
Project Designation 200-PW-2/200-PW-4 (OU - Borehole Soil Sampling		ing Location -A-37 (C4106); (97.5'-10	00')				SAF No. F03-006	1	Air Quality		45	Days
Ice Chest No.	RC 01-038	Field HN	Logbook No. F-N-3361		COA 117504E	ES10		Method of Ships Federal Expres					
	RECRA ES (Formerly TMA)	//22/63 Offsit	e Property No.	9030	Z 7	<u>'-</u>		Bill of Lading/A	ir Bill N	o. SE	5-05	PC	
'	HAZARDS/REMARKS	1-1-	Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None					
Tres	TO BIGNDI		Type of Container	aG	aG	aG	aG	19/				 	
Special Handling an	COOLYOC		No. of Container(s)	r(s)		1	-	l					
	2001 ;		Volume	120mL		120mL	60m	L 60mL					
			<u> </u>	Chromium Hex - 7196	NO2/NO3 353.2	- Oil & Grease - 413.1	See item Specia Instructi	i /					
	SAMPLE ANAL	YSIS					ر اها	12/105		_			
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Sample No.	Matrix *	Sample Date	Sample Time										
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CHAIN OF POSS		Sign/Prio			SP	ECIAL INSTR	UCTIO	NS 13/2	4/2	2/03	** *** - 1-1 -		Matrix *
Relinguished By/Removed Fr	Mars 4/20/63/43D	Received By/Sto		:30-03 143				el range compounds i			** I ne labora	tory is to	S=Sail SE=Sediment
Relinguished By/Removed Fr	rom Date/Time 1 4 5	Received By/Sto	red In Da	ate/Time / Y	30 (L)). Technotium 99, 1 9, Nickel-63, Nep		1-89,90 - Total Sr; Is			32); Carbon-	14, lodine-	SO=Solid SI=Shedge W = Water
Relinguished By/Removed Fr	والمستوال المستوالي المستوالي المستوالي المستوالي المستوالي المستوالي المستوالي المستوالي المستوالي			30 03 ate/Time (00		7, Mickel-03, Mep	introm-s	" 4/22	105	984			O-Oil A-Air
13 372	8 3-Z-03	K-Cell	D. P. John	5.2.0									DS=Drum Solida DL=Drum Liquids T=Tinne
	rom ERCDate/Time 100		red In Di	ate/Time									W)=Wipc L=Liquid V=Vegetation
Relinguished By/Removed Fr	rom — Date/Time 5.3.03 11.0	ate/Time -03 //:0	20								X=Other		
	elinquished By/Removed From Date/Time Received By/Stored In Da										_		
LABORATORY Rec	ceived By			Titl	le						<u>-</u>	Date/Time	·
	FINAL SAMPLE Disposal Method						sed By					Date/Tune	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TUU Hanford

irchase Order/Project:

DATE: 5.3.03

AF#/ SOW# / Release #: F03-006

aboratory SDG #:

03051339

	ALL ENTRIES MARKED "NO" MUST BE I				
1.	Custody seals on coolers or shipping container intact, signed and dated?	Yes	. DNo	D N/A	☐ see Comment:
2.	Outside of coolers or shipping containers are free from damage?	D-Yes	□ No	D N/A	🗆 see Comment
3.	Airbill # recorded?	Yes	□ No	D N/A	D see Comment
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	OF Yes	□ No	□N/A	🗆 see Comment
5.	Sample containers are intact?	De Yes	D No	□ N/A	🗆 see Comment
6.	Custody seals on sample containers intact, signed and dated?	tores	D No	D N/A	D see Commen
7.	All samples on coc received?	Yes	□ No	□ N/A	· 🗀 see Commer
8.	All sample label information matches coc?	Yes Yes	DNo	D N/A	🗀 see Commer
9.	Laboratory QC samples designated on coc? (QC stickers placed on bonles?)	□ Yes	□ No	ANA	🖸 see Commer
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	Yes Yes	D No	□ N/A	□ see Comme
11.	Where applicable, bar code labels are affixed to coc?	□ Yes	D No	(B)N/A	🗆 see Comme
12.	coc signed and dated?	SDYes	□ No	D N/A	D see Comme
13.	coc will be faxed or emailed to client?	Yes.	D No	□ N/A	D see Comme
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	D Yes	. □ N₀	GT N/A	🖸 see Comme

Cooler # / temp (°C) and Comments:

ERC 01-038/0.6°

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory Use Only

Est. Final Proj. Sampling Date _

Project Contact/Phone # __

Client TNU Hanford F03-006

(1347 - 606-001.9999,00

Custody Transfer Record/Lab Work Request Page 1 of _

Liquid

Solid

Liquid

0305L357

Project # ___

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Volume

Refrigerator #

#/Type Container

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MATRIX				atrix								,	Lionvi	lle La	borato	ory Us	e Only		, 		 -	
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Special Instruc	tions:	SAF # F03-006		5-	Y-0)	1. Per C	han	D.	<u>1</u>	ate	<u> </u>	- (6-0	ני		_							
						2. Add	As As	В.	Ba	Be i	3: c	J. Cc.	С. н	c Ni	1)	amples) Shippe	were:	_ or	1)	mper Resid	on Out	er
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FH-Central Plate	eau Project	C	HAIN OF CUST	ODY/S	AMPLI	EANALY	YSIS	REQUES	Γ		F03-006-69	Page <u>1</u>	of 1
Collector Johansen/Pope/Pfister		Comp	eany Contact Huistrom	Telepho 373-3	ne No.			Project Coord TRENT, SJ		Price Cod	le 8N	Data Tur	
Project Designation 200-PW-2/200-PW-4 OU -	Borehole Soil Sampling	Samp	sling Location 6-A-37 (C4106); (147.5'-1					SAF No. F03-006		Air Qua	lity 🔲	45 I	Days
Ice Chest No.	-01.063		Logbook No. NF-N-3361		COA 117504ES	310		Method of Shi Federal Exp				<u>-</u>	
Shipped To BERLINE SERVICES (F	CRA 15m	lu? Offsi	te Property No.	7038	222			Bill of Lading	/Air Bill	No. 5	EE OSF	~	
POSSIBLE SAMPLE HAZ	ARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None	1				
Tieto			Type of Container	aG	aG	aG		ag					
Special Handling and/or	Storage		No. of Container(s)	1	1	1	1	1					
	20017-		Volume	120mL	60mL	120mL	60m	L 60mL					
	 	Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Speci Instruct	ù/							
			Tieto:						e produce pare in	2000			
Sample No.	Matrix *	Sample Date											2000C
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CHAIN OF POSSESS	SION	Sign/Pri	nt Names	_ 	SPE	CIAL INSTI	RUCTIO	ONS A	Spe	4/22/03	n-14. ** The labora		Matrix *
Relinquished By/Removed From	54 Date/Time 6 5/5/03 13/5	Received By/St	ored In A 5-5-03	Pate/Time		The laboratory is not both kerosen	s to achic e and die:	el range compoun	of 50.0 p Is from W	GVg for Carbo TPH-D analys	n-14. ** The labora is.	tory is to	S=Soil SE=Sediment
Relinquished By/Removed From	Date/Time	Received By/St	tored in	Date/Time	100 (1)						rium-252); Carbon-	ta; fodine:	SO=Solid SI=Studge W = Water
	5 · 6 > 3 100 Date/Time 1000	Received By/Si		5 · 6 · 6 · 5	127	; Nickel-63; Ne	htmamu-	un aşa	4/1	22/43			O=Oil A=Air
Relinquished By/Removed From		Feel I	roller m			Personnel	not ava	ilable to	~				DS=Drum Solids DL=Drum Liquids
Relinquished By/Removed From		Received By/Si	tored in	ate/Time		relinquish Ref# 16	Sample	s from the 3725		=			T=Tissue W!=Wipe L=Liquid
Relinquished By/Removed From	5:7:03/10:10 Date/Time	Received By/S		3 10 / i					_			. •	V=Vegetation X=Other
Relinquished By/Removed From													
LABORATORY Received	d By	\		7	Title	<u> </u>						Date/Time	<u> </u>
SECTION FINAL SAMPLE Disposal Method DISPOSITION						Disp	osed By				<u> </u>	Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Hanford

archase Order/Project:

DATE: 5.7.03

AF# SOW# / Release #: FO 3-00L

aboratory SDG #:

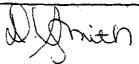
aboratory SDG #: O305L357					
OTE:	ALL ENTRIES MARKED "NO" MUST BE	EXPLAINED IN	THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	DOY es	□ No	D N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	D Yes	□ No	D N/A	D see Comment #
3.	Airbill # recorded?	Yes	□ No	□ N/A	□ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	N Yes	□ No	DNA	□ see Comment#
5.	Sample containers are intact?	Yes	D No	□ N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	D Yes	□ No	□ N/A	D see Comment #
7.	All samples on coc received?	D Yes	□ No	□ N/A	· 🖸 see Comment #
8.	All sample label information matches coc?	Yes	□ N ₀	□ N/A·	See Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	Yes	□ No	D N/A	□ see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	TX Y.es	□ No	□ N/A	See Comment #
11.	Where applicable, bar code labels are affixed to coc?	□ Yes	□ No	ONA	□ see Comment #
12.	coc signed and dated?	YOYes	□ No	□ N/A	See Comment #
13.	coc will be faxed or emailed to client?	□ Yes-	□ No	D N/A	□ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	_ Yes	, D No	ENIA	D see Comment #

Cooler # / temp (°C) and Comments:

ECC-01-063 /2.3"

Laboratory Sample Custodian:

Laboratory Project Manager:



(6) VOH, UNP, TIME FIRM, IMPRES, WILL, MICH

Laboratory	Use	Only

Custody Transfer Record/Lab Work Request Page 1 of 1

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03051366

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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	T	<u>-</u>				trix				<u> </u>	L		<u> </u>		Lionvi	ille Lai					1	<u> </u>		
MATRIX CODES:	1				a	C		Date	Time											-,1	ત્ર			-
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SL - Sludge W - Water		RVI SO			- In-3		5	5.603	0945	-								-	X	X	X			
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DL - Drum	ļ							 	}	├	┼	├					-		 -			 	┢╅╾╵	
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}																		<u> </u>				1		
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FH-Central Plateau Project	CH	IAIN OF CUST	ODY/S	SAMPLI	EANALY	YSIS	REQUEST	F03-	006-70 Page 1	of 1
Collector Johansen/Pope/Pfister	Compa	ny Contact Iulstrom	Telepho 373-3	ne No.			Project Coordinate TRENT, SJ	Price Code		Conuovania.
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		ng Location A-37 (C4106); (197.5'-2	!00')				SAF No. F03-006	Air Quality	□ 45	Days \
Ice Chest No. FRC 99.022		.o gbook No. -N-3361		COA 117504ES	510		Method of Shipmer Federal Express	nt		
Shipped To EBERLINE SERVICES (Formerly TMA) Agr 4/21/63	Offsite	Property No.	A03E	22	>		Bill of Lading/Air	Bill No. SE	E BRC	
POSSIBLE SAMPLE HAZARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None			
Tre To BIGWDO		Type of Container	aG	aG	aG	aG	a9			
Special Handling and/or Storage	- 1	No. of Container(s)	1	1	1	1	/'			
		Volume	120mL	60mL	120mL	60m	L 60mL			
SAMPLE ANALYSIS			Chromium Hex - 7196	NO2/NO3 - 353,2	Oil & Grease - 413,1	See item Speci Instruct	à / l			
						NZ	Ŋſ.	TieTo:		
	pie Date	Sample Time						2		
B16W87 SOIL S	6/03	0945	1	+	1-	 		Brown		
 			 		 	 				
			<u></u>	<u> </u>		<u> </u>				<u> </u>
Relinquished By/Removed From Date/Time Received	Sign/Print ved By/Stor		ate/Time		CIAL INSTE	RUCTION S to achie	ONS / // eve a detection timic of 30 set range compounds from	0.000 (1) 0.000	** The laboratory is to	Matrix * S=Soil SE=Sediment
Relinquished By/Removed From Date/Time 1000 Received Relinquished By/Removed From State/Time 1000 Received Rece	ved By/Stor	ed in D	ate/Time	10 00 OT	Technetium-99; ; Nickel 63; Ner	Strontiu Ptunium		opic Thorium (Thorium-2	32], Carbon-14, Iodine-	SO=Solid SI=Studg: W = Water O=Oil A=Air DS=Drum Solids
Relinquished By/Removed From Date/Time Recei	P of E	red in D	este/Time	re	ersonnel not a elinquish sam	ples fro	le to om the 3728	-		DL=Drum Liquids T=Tissuc WI=Wipe L=Liquid
	ved By/Stor		ate/Time	^`	.c <u></u>	· _ 				V=Vegetation X=Other
Relinquished By/Removed From Date/Time Recei	ved By/Sto	red In D	atc/Time							
LABORATORY Received By SECTION				Title	·				Date/Time	
FINAL SAMPLE Disposal Method DISPOSITION					Disp	osed By			Date/Time	

LIENT: TNU Harrord

irchase Order/Project:

DATE: 5.803

AF# SOW# / Release #: FO3 - OOL

aboratory SDG #:

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping D No DNA D see Comment # container intact, signed and dated? Outside of coolers or shipping containers are 2. D No DINA D see Comment # free from damage? Airbill # recorded? D No DINA ☐ see Comment # All expected paperwork received (coc and D No other client specific: historical data. D N/A D see Comment# alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? D'Yes □ No DNA D see Comment # Custody seals on sample containers intact, D No. D N/A D see Comment # signed and dated? All samples on coc received? D No D N/A See Comment # DNo D N/A 🗖 see Comment # All sample label information matches coc? 8. Laboratory QC samples designated on coc? □ No D N/A See Comment # (OC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance D No DN/A D see Comment # Policy? (identify all bonles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes □ No AIKE ☐ see Comment # affixed to coc? DY es D No D N/A D see Comment # 12. coc signed and dated? Yes. 13. coc will be faxed or emailed to client? D No D N/A C see Comment # 14. Project Manager/Client contacted □ Yes D No D see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC 99-022 /2.0"

Laboratory Sample Custodian:

Laboratory Project Manager:

D (mith

(6) VOA , HAND , PIC MI - FIRM , MUTICI, THE , MUTICI

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page ___ of ___

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		DEDOOMIEL.	ACMINI ETT	0111 W 0114	D E



03054372 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS Client TNU - HANFORD F03 -006 Refrigerator # Licuid Est, Final Proj. Sampling Date #/Type Container Project # (1343 - 606.001 - 9999-00 1A6 1A6 1AG Solid Liquid Project Contact/Phone # _____ Volume 60 120 Solid Lionville Laboratory Project Manager ____ 30 days Preservatives QC SPEC Del STD TAT_ ORGANIC 6-16-03 **ANALYSES** (N3) Date Rec'd 5-9-03 Date Due ____ 6-8-01 m REQUESTED Lionville Laboratory Use Only Matrix MATRIX QC CODES: **1473/12** Time Chosen Date Lab Matrix Client iD/Description S - Soil Collected Collected SE - Sediment SO - Solid SL - Sludge W - Water 001 BIBW88 5-203 1050 O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish DATE/REVISIONS: Lionville Laboratory Use Only SAF # F03-006 Special Instructions: 5-14-03; Par Chant Dre Date: 6-16-03 Samples were: Tamper Resistant Seal was: 2 Add Ag, As B, Ba, Be, B; Cd, Cr, Cu, Hr, Nift, 1) Shipped ____ or 1) Present on Outer Hand Delivered ____ Batch QC For 1339, 357, 366, 372 Package (Oor N 3 Sb Se / IC: CI, FI NO, NO, POY SO, 2) Unbroken on Outer 6010W Package (V) or N 4 TAHON, LPH OLZYH, OBZSX. OGCSC OPCB 2) Ambient or Chilled 3) Present on Sample Ø or N 3) Received in Good 5 ODRO OFRO Condition (Y) or N 4) Unbroken on 4) Samples Sample (7) or N Property Preserved or N COC Record Present Received Relinguished Relinquished Received Discrepancies Between Time Date Time Upon Sample Rec't bγ Samples Labels and 5) Received Within (Y) or N COC Record? Y or (N) 5-9-03 0930 Holding Times FEDEX NOTES: (Y) or N

<u>7915 8912 8567</u>

FH-Central Plateau Project	CHA	IN OF CUST	ODY/S	AMPI	LE ANALY	YSIS I	REQUEST		F03	-006-71	Page <u>l</u>	of <u>I</u>
Collector Johansen/Pope/Pfister	Company LC Hu	Contact	Telephor 373-39	ne No.		- 1	Project Coordinator TRENT, SJ	Price	Code	8N		naroun
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Location 37 (C4106); (237.5'-24	10')				SAF No. F03-006	Air Ç	Quality		45 1	Days 🗀
Ice Chest No. ERC-01-04/0	Field Log			COA 117504	ES10		Method of Shipmen Federal Express	nt				
Shipped To RECEA ERERLING SERVICES (Formerly TMA) 94 4/22/61	Offsite P	roperty No.					Bill of Lading/Air	Bill No.	See	0590	ン	
POSSIBLE SAMPLE HAZARDS/REMARKS		Preservation	Cool 4C	Cool 4	Cool 4C	None	None		.			
Special Handling and/or Storage		Type of Container	aG	aG	аG	зG	39					
Special Haitoning and of Storage		No. of Container(s)	120-1	60ml	1 L 120mL	60mI	60mL					[
		Volume	120mL									
SAMPLE ANALYSIS			Chromium Hex - 7196	NO2/NO 353.2		See item (Specia Instruction	i/				<u> </u>	
SAIN LE ANADIOIS						M	My		Til	10:		
Sample No. Matrix * Sam	nple Date	Sample Time	,									
B16W88 SOIL 5-	7-03	1050	X	}	$X \mid X$	¥			<u>BIC</u>	WDO		
<u> </u>			<u> </u>	-		┼─				 	 	
				<u> </u>				1- 1/1-	22/-1	<u> </u>	<u>l</u>	Matrix *
	Sign/Print!	in D	ate/Time		PECIAL INST	s to achie	e a detection limit of 50	J.0 pCi/g for €	2 2/63 Safoon-14.	** The laborat	tory is to	S=Soil
			TIB H		•		el range compounds from					SE=Sediment SO=Solid
Relinquished By/Removedy From Date/Time Rece 350ACE STARL 5703 1440 R	eived By/Stored	3728 520	ate/Time 3 /44		(1) Technetium-99 129; Nickel-63; Ne		9-89,90 - Total Sr. Isoto	opic Thorium		232}; Carbon=1	14, 700me-	Si=Sludge W = Waser O=Oil
Relinquished By/Removed From Date/Time Rece	eived By/Stored	I teim D	ate/Time	>837	Personnel not a	available	to	, ,				A=Air DS=Drum Solids DL=Drum Liquids
<u> </u>	eived By/Store		ate/Time		relinquish sam Ref # <u>IR</u> on							TwTissuc WI=Wipe L=Liquid
Relinquished By/Removed From Date/Time Reco	eived By/Store	116\ 1\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	ate/Time	0930								V=Vegetation X=Other
	erved By/Store		ate/Tune									<u> </u>
												
LABORATORY Received By SECTION			[Title							Date/Time	

JENT: THU HANGORD

rchase Order/Project:

DATE: 5-9-03.

1F#/SOW#/Release#: [=03-006

aboratory SDG#: 0305C372

	ALL ENTRIES MARKED "NO" MUST BE				
•	Custody seals on coolers or shipping container intact, signed and dated?	₽Ŷes	. 010 .	□ N/A	D see Comment #
2,	Outside of coolers or shipping containers are free from damage?	Ø Yes	D No	D N/A	See Comment #
3.	Airbill # recorded?	Yes :	□ N ₀	D N/A	D see Comment
۱.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as	ØYes	D No	D N/A	□ see Comment (
	applicable)? (paperwork sealed in plastic bag and taped to inside lid)	,			
	Sample containers are intact?	E Yes	□ No	O N/A	See Comment
i.	Custody seals on sample containers intact, signed and dated?	ØÝes 	D No.	D N/A	D see Comment
•	All samples on coc received?	TZ Yes	O No	□ N/A	- D see Comment
i.	All sample label information matches coc?	Yes	□ No	D N/A	ase Comment
	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	Ø Yes	D No	DNA	D see Comment
0.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	Ø Yes	□ No	D N/A	🗆 see Comment
1.	Where applicable, bar code labels are affixed to coc?	D Yes	O No	ETNIA	D see Commen
2.	coc signed and dated?	□ Yes	□ No	DNA	D see Commen
3.	coc will be faxed or emailed to client?	™ Yes•	□ N ₀	D N/A	□ see Commen
4.	Project Manager/Client contacted concerning discrepancies? (name/date)	D Yes	. D No	ENIA	☐ set Commen

Cooler # / temp (°C) and Comments:

1.5° ERC 01 -040

Laboratory Sample Custodian:

Laboratory Project Manager:

W

DATE RECEIVED: 05/03/03 LVL LOT # :0305L339

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W84	001	s	03LVJ514	04/30/03	N/A	06/14/03
B16W85	002	S	03LVJ514	04/30/03	N/A	06/14/03
LAB QC:						
TBLKIY	MB1	s	03LVJ514	N/A	N/A	06/14/03
TBLKIY	MB1 BS	S	03LVJ514	N/A	N/A	06/14/03



Analist's

DATE RECEIVED: 05/07/03 LVL LOT # :0305L357 CLIENT ID LVL # MTX PREP # COLLECTION EXTR/PREP ANALYSIS B16W86 001 S 03LVJ514 05/05/03 N/A 06/14/03 LAB QC: TBLKIY MB1 N/AS 03LVJ514 N/A06/14/03

S 03LVJ514

N/A

N/A

MB1 BS

TBLKIY

Agus Isla

06/14/03

DATE RECEIVED: 05/08/03 LVL LOT # :0305L366 LVL # CLIENT ID MTX PREP # COLLECTION EXTR/PREP ANALYSIS B16W87 001 S 03LVJ514 05/06/03 N/A 06/14/03 LAB QC: N/A N/A 06/14/03 MB1 S 03LVJ514 TBLKIY TBLKIY MB1 BS S 03LVJ514 N/AN/A 06/14/03

Hulaks

DATE RECEIVED: 05/09/03 LVL LOT # :0305L372

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
B16W88	001	SO 0	3LVJ514	05/07/03	N/A	06/14/03
B16W88	001 MS	SO 0	3LVJ514	05/07/03	N/A	06/14/03
B16W88	001 MSD	SO 0	3LVJ514	05/07/03	N/A	06/14/03
LAB QC:						
TBLKIY	MB1	S 0	3LVJ514	N/A	N/A	06/14/03
TBLKIY	MB1 BS	S 0	3LVJ514	N/A	N/A	06/14/03

Ands



Analytical Report

Client: TNU-HANFORD F03-006 LVL #: 0305L339, 0305L357,

0305L366, 0305L372

W.O. #: 11343-606-001-9999-00 Date Received: 05-03,07,08,09-2003

SDG/SAF # H2195/F03-006

GRO

Five (5) soil/solid samples were collected on 04-30-2003 and 05-05,06,07-2003.

The samples and their associated QC samples were analyzed according to Lionville Laboratory OPs based on SW-846 method 8015 for Gasoline Range Organics (GRO) on 06-14-2003. The analysis met the intent of method WTPH-G.

The following is a summary of the OC results accompanying these sample results and a description of any problems encountered during their analyses:

- All results presented in this report are derived from samples that met LVLI's sample acceptance 1. policy.
- 2. The required holding time for analysis has been met.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. All surrogate recoveries were within acceptance criteria.
- 5. The blank spike recovery was within acceptance criteria.
- 6. The matrix spike recoveries were within acceptance criteria.
- 7. All initial calibrations associated with this data set were within acceptance criteria.
- 8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

som\r\group\data\gro\tnu-hanford\0305-339,357,366,372.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 2 4 pages. 05



GLOSSARY OF GASOLINE RANGE ORGANICS DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- **DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- **DF** = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.



GLOSSARY OF GASOLINE RANGE ORGANICS DATA

- **D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C = This flag applies to a compound that has been confirmed by GC/MS.

R:/SHARE/GCVOLATILE/GCVOLATILEGLOS.DOC

GAS RANGE ORGANICS

	Cust ID:	B16W84	B16W85	TBLKIY	TBLKIY BS	
Sample	RFW#:	001	002	03LVJ514-MB1	03LVJ514-MB1	
Information	Matrix:	SOIL	SOIL	SOIL	SOIL	
	D.F.:	1.00	1.00	1.00	1.00	
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	
	Fluorobenzene	77 %	83 %	98 %	109 %	<u> </u>
		======fl==:	======f	\======f]	L========f1====	========f1============================
Gasoline Range C	organics (GRO)	30 U	33 U	30 U	105 %	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

98 Unds

Report Date: 06/18/03 12:4800

GAS RANGE ORGANICS

RFW Batch Number: 0305L357 Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1 Cust ID: B16W86 TBLKIY TBLKIY BS Sample RFW#: 001 03LVJ514-MB1 03LVJ514-MB1 SOIL Information SOIL SOIL Matrix: 1.00 1.00 D.F.: 1.00 UG/KG Units: UG/KG UG/KG 109 98 왐 Fluorobenzene 81 ¥ Gasoline Range Organics (GRO) 30 U 30 U 105 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Allala

Report Date: 06/18/03 12:467

GAS RANGE ORGANICS

Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L366 Cust ID: B16W87 TBLKIY TBLKIY BS 03LVJ514-MB1 RFW#: 001 03LVJ514-MB1 Sample SOIL SOIL Information Matrix: SOIL 1.00 D.F.: 1.00 1.00 UG/KG Units: UG/KG UG/KG 109 왕 Fluorobenzene ક 98 Gasoline Range Organics (GRO) 30 U 30 U 105 %

of halm

Report Date: 06/18/03 12:49

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

	Cust ID:	B16W88		B16W8	В	B16W88	3	TBLKIY		TBLKIY BS			
ample	RFW#:	001		001 M	s	001 MS	D	03LVJ514-N	B 1	03LVJ514-1	Æ1		
nformation	Matrix:	SOLID		SOLID		SOLID		SOIL		SOIL			
	D.F.:	1.00		1.	00	1.6	00	1.0	00	1.0	00		
	Units:	UG/KG		UG/	KG	UG/1	KG	UG/H	(G	UG/1	KG		
	Fluorobenzene	86 %	-		8	87	왕	98	8		8	·	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page i of

Liquid

Solid

Liquid

Solid

ORGANIC

020	<1	339
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Client TNU-Hamford

Est. Final Proj. Sampling Date _

Project Contact/Phone # __

Project # ____

QC_SPEC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Refrigerator #

Volume

Preservatives

ANALYSES REQUESTED

#/Type Container

F03-006

6-16-01

11343-606.001-9999-00

Del STD TAT 30 days

Lionville Laboratory Project Manager Orlette Johnson

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Samp roperty	Preser				(Y) or cord Pr	
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Date Rec'd	<u>53</u>	03 Date Due	6-16-03 5-	· · · · · · · · · · · · · · · · · · ·	REQUE		-	VOA	BNA	Pest/ PCB	Herb				Na Na Na Na Na Na Na Na Na Na Na Na Na N	رے سال	3.2 2.2	ۇ <u>ر</u> <u>ئ</u> ىق		:	
MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge	Lab ID	Client ID/Descrip	tion	Matrix QC Chosen (V)	Matríx	Date Collected	Time Collected				1	1	ionvil	le Labo	ratory U	Se Only	543 A L	TOGGR -			
W - Water O - Oil	COL	B16W84			S	4-3003	0900									<u> X</u>	X	_X_		-	
A - Air DS - Drum	003	T			1	1	1938									X_	Х	X			
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Leachate Wi - Wipe X - Other					<u> </u>	 			·				-			╂					
F - Fish	-																				
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Special Instru	tions:	SAF # F01-00		DATE	REVISIO	NS: Par	cl'l t	1	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		C -11	-01				Lionvi	lle Lab	orator	y Use O	nly	
Bo	fore	Medres Qc37 2C for 1339,357,3				2. AJd 3. N: P 4. INH3	Aq. As, b. 5b. N. IPH	B Se/	Bq.	Ве, С. F	B; (3d. C.	POY	50 x	1) Ship Hand D Airbill # 7907 2) Amb	s were / ped / Pelivered (25 % C iem or (37	1 P 14 P	amper Resi Present ackage Unbrok ackage (Present	ton Ou O or sen on O O or	iter N Outer N imple
						5. ODAC	IGR	0							Condition 4) Sam	on M	r N	S) Unbrok Sample (en on	N
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Stepl Ex		1 Min 5.3.03	11:00 3	Disposition of the contract of			RIGIN		A.I			C Record	1 Y (я •⊍	Holding	Times	or N	7	Cooler (<u>ما. د</u>	- ℃
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FH-Central Plateau	ı Project	C	HAIN OF CUST	'ODV/S	AMPIT	LANAL.	YSIS	REQUEST	1	A V+	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	
			MINITOR COOK	טוגעט.	TATIFF TO	3 2 22 12 22 2							
Collector Johansen/Pope/Pfister			nny Contact Hulstrom	Telepho 373-3				Project Coordin TRENT, SJ	ator I	Price Code	8N		rnaround
Project Designation 200-PW-2/200-PW-4 OU - Boo	rehole Soil Sampling	Sampl 216	ling Location -A-37 (C4106); (72.5'-75	(')				SAF No. F03-006	A	Air Quality		45	Days
Ice Chest No. ERC	-01.038	Field HN	Logbook No. F-N-3361		COA 117504ES	10		Method of Ships Federal Expres		·	. 	<u> </u>	က
Shipped To RET R. EBERLINE SERVICES (Form	A nerty TMA) ASIC	1/12/as Offsite	e Property No.	103	0 22	-1		Bill of Lading/A	ir Bill No	o. <i>≤£</i>	E	05 PC	-
POSSIBLE SAMPLE HAZAR Radiose f	IDS/REMARKS · ' ∨ €	•	Preservation	Coal 4C	Cool 4C	Cool 4C	None	e None					
Coosial Handling and/or Sta	D BIGWD		Type of Container	ъG	aG	aG	aG	sG/					
C.	08 14°4		No. of Container(s)	1 120mL	l 60mL	1 120mL	60m	L 60mL		}	 	 	
			Volume	Chromium	NO2/NO3 -	Oil & Grease -	Sec item (
	SAMPLE ANAL	YSIS		Hex - 7196	353.2	413.1	Specia Instructi	i/].]					
			·				V _N	W.		Tiet	b :		
Sample No.	Matrix *	Sample Date	Sample Time	Professional Contraction									
B16W84	SOIL	4-30-0	3 1900	+	 	X	/			Bleu	100	 	
<u> </u>					 	 					ļ	<u> </u>	<u> </u>
												<u> </u>	
CHAIN OF POSSESSION		Sign/Prin	t Names	<u> </u>	SPE	CIAL INSTI	UCTIO	ONS 98	4/1	403	<u> </u>		Matrix *
Retinguished By Restored From Walte	Date/Time 1-4-30103 (43)	Received By/Stor	REGIS 436	te/Time 03 143 tte/Time 14	repor	he laboratory is t both kerosene	to auhier and dies	e a detection limit of el range compounds fi	\$0.0 pČi/g rom WTPH	for Carbon-14. I-D analysis.	** The labor	·	S=Soil SE=Soilment SO=Solid
Relinquished By/Removed From Relinquished By/Removed From	Date/Time 100	Received By/Sto	3728 4.7	30.000 te/Time 10	129 ₇	Nickel-63; Nep		1-89,90 - Total Sr; le 37 A SV	-	12/03	.32 <u>): Carnon</u>	-14 <u>; todin</u> e-	Si=Skeige W = Water O=Oil A=Air DS=Drum Solids
Paliaguished Bu/Damoued From 1977	2-03 Date/Time 1001	Received By/Stor	De Prohibired In Da	to Thine	اليود.					•			DL=Drum Liquid T=Tissue WI=Wipe L=Liquid
Balilanished Bu/Pantived From	Date-Time 5 3 03 11:00	Received DyAston	Mith 5.3	te/Time	ريد					• .			V=Vegesation X=Other
Relinquished By/Removed From	Date/Time	Received By/Sto	ed In Da	te/Time									
LABORATORY Received By SECTION				Ti	tie							Date/Time	
FINAL SAMPLE Disposal Met DISPOSITION	hod			····		Dispo	sed By					Date/Time	

FH-Central Plate	au Project	CI	HAIN OF CUST	CODY/S	AMPL	E ANALY	<u>YSIS</u>	REQUEST	<u>'</u>	F03	5-006-68	Lake T	· ·
Collector Johansen/Pope/Pfister			any Contact Huistrom	Telepho 373-3				Project Coordi TRENT, SJ	ator	Price Code	8N		rnaround
Project Designation 200-PW-2/200-PW-4 OU - I	Borehole Soil Sampling		ling Location -A-37 (C4106); (97.5'-10	00')				SAF No. F03-006		Air Quality		45	Days <
Ice Chest No.	C01-038	HN	Logbook No. F-N-3361		COA 117504E	ES10	 	Method of Ship Federal Expre			·	<u>.</u>	
Shipped To EBERLINE SERVICES (PC POSSIBLE SAMPLE HAZ.	FOR PA	4/22/63 Offsite	e Property No.	9030	77	<u>'</u>		Bill of Lading/	Air Biil N	10. SF	E-05	PC	
TZa	a vocative	, , , , , , , , , , , , , , , , , , , 	Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None				-	
Trevo Special Handling and/or	BILWPI		Type of Container	. sG	a/G	яG	₽G	*9					
C	2001400		No. of Container(s)	1 120mL	1 60mL	1 120mL	1 60m			_	ļ	<u> </u>	
			Volume	Chromium	NO2/NO3		See item	/		 		 	
	SAMPLE ANAL	.YSIS		Hex - 7196	353.2	413,1	Specia Instructi	ا / آنه					
							P.38	alv 16,		Tie	D:		
Sample No.	Matrix *	Sample Date	Sample Time										
B16W85	SOIL	4-30-0	3 1728		X	1 1	<u>/</u>	_		BILL	ψDI	 	
	}								 .		 	 	
CHAIN OF POSSESSION		Sign/Prin	i Names	<u>L,</u>	SPI	ECIAL INSTR	UCTIC	ons 1872	4/2	2/03	<u></u>	<u> </u>	Matrix *
Relinguished By/Remayed Ruan	Date/Time		red in Exc D	30-03/4		The laboratory is	lo acriev	Pe a detection limit of e) range compounds	rsaabcas	g for Carbon-14.	** The labora	tory is to	S-Sail SE-Sediment
Relinquished By/Removed From	Date/Time 1 4 3	Received By/Sto	red in D	ate/Time / 4 30 03	30 (1)	Tochnotium-99, 9, Nickel-65, Nep		n-89,90 - Total Sr; t		Prium (Thorium-2	[32]; Carbon-	14; lodine-	SO=Solid SI=Sludge W = Water
Relinquished By/Removed From	Date/Time 1000	Received By/Stor	red in D	ate/Time 100				1/20		17			O=Oil A=Air DS=Drum Solids DL=Drum Liquids
Relinquished By/Removed From 1	ReDate/Time 100	O Received By/Sto		ate/Time									T=Tisose W!=Wips L=Liquid
Relinquished By/Removed From	— Bate/Time 5303 11:0	Received By Sid	red-In Da	ate/Tune -03 //:	∞)								V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By/810	red in D	ate/Time									
LABORATORY Received I	Зу			Ti	itle				 -	 		Date/Time	
FINAL SAMPLE Disposal Management DISPOSITION	Aethod					Dispo	sed By				····	Date/Time	
													

LIENT: TUU Honford

irchase Order/Project:

DATE: 5.3.03

4F#/ SOW# / Release #: F03.006

aboratory SDG #:

03056339

	000,000				
OTE:	ALL ENTRIES MARKED "NO" MUST BE I	EXPLAINED II	THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	S)Y es	□ No	□ N/A	D see Comment if
2.	Outside of coolers or shipping containers are free from damage?	D-Yes	D No	DNA	D see Comment #
3.	Airbill # recorded?	Yes	□ N ₀	DNA	see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	D'Yes	D No	D N/A	□ see Comment #
5.	Sample containers are intact?	P Yes	□ No	□ N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	tycres	D No	□ N/A	See Comment #
7.	All samples on coc received?	Yes	□ No	D N/A	· 🖸 see Comment #
8.	All sample label information matches coc?	Yes	D No	D N/A	D see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	D Yes	□ No	DNA	D see Comment #
10	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	Yes	D No	D N/A	🗅 see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	□ N ₀	(DNIA	□ see Comment #
12.	. coc signed and dated?	XI) Yes	□ No	□ N/A	D see Comment #
13.	coc will be faxed or emailed to client?	TYes.	□ No	© N/A	See Comment #
34.	Project Manager/Client contacted concerning discrepancies? (name/date)	D Yes	. 🗆 No	E N/A	[] see Comment #

Cooler # / temp (°C) and Comments:

ECC 01-038/0.6"

Laboratory Sample Custodian:

Laboratory Project Manager:

D. Smith

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

	Ö	VLI ⁹
A	bc	HONVILLE LABORATORY INC.

0305L357

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

	111 1	tamford	F03-	<u></u> ΜΙ.		F	Retriger	ator#											2		7			
			· <u>·</u>	<u> </u>					Liquid															{
Est. Final Pro		(343 - 606.	001.49	19200		*	итуре С	Container	Solid										lag	100	ممد			
Project #									Liquid										`	,	•			
Project Conta	CVPNO	Project Manage	(D) 0 0 me	1. Q. D.	کسے	— I '	Volume		Solid										120	60	120			
LIONVINE LADO	oratory	Del	3	03/11/2		_ _	Preserva	atives									-		1	1	-		1.	
00 3150	=-	Del	_ TAT _	,		⊦					ORG	ANIC					INO	RG	न्	7	4			
		~		6-16-		11	ANALYS	SES STED		ΛΟΛ	BNA	Pest/ PCB	Herb				Metal	S	Hes	707	ا ان ان			, ,
Date Rec'd	<u>5. (</u>	৩১	Date Due _	-0-0-	~_ C5	== -					an .	مَم] <u> </u>	L	Lingui	ille Lal					00		لــنــ	
MATRIX		j			Mat						,		, * -		Piona	ille Lat	Maio	ny Os	e Om,		_*			, <u>-</u>
CODES:	Lab	Cité	ent ID/Descri	ntion	Cho	sen ,	Matrix	Date Collected	Time										و	INJAL	7066R		.]	,)
S - Soil SE - Sediment	ID			•	(0	"		Collected	Conected									,	ICR	3	90		.	1 1
SO - Solid SL - Sludge	<u> </u>					MSD			· 	 		ļ		ļ		 						 -		
W - Water O - Oil	001	BIGW81	<u> </u>				5	<u>55.03</u>	0900	<u> </u>	 			 -	ļ				스	メ	X		┌┷╌┦	
A - Air DS - Drum					2- 4	7(07							<u> </u>	ļ					 	L	 	 	أحبا	
Solids DL - Drum							-			İ			L							L				
Liquids		<u> </u>											1			1	.] _]
L - EP/TCLP Leachate	 	 																		{	{			
Wi-Wipe X - Other	 	 					<u> </u>							 							<u> </u>			
F - Fish		 								 	 	 	 	 	 				 	 	 	 	 	
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}		<u> </u>	· · · · · · · · · · · · · · · · · · ·			1				<u> </u>	_	 	 	<u> </u>	↓	<u> </u>		ļ	 	 	 	 	 	
	<u>L</u>								l	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>L</u>	<u> </u>	<u> </u>
Special Instruc	tions:	SAF #	F03-0	06		DATE/RI	EVISION	ns: 1. Pen C	1:1	7	. X	.1.	- 6	- lu r	٠,				Lionvi	lle Lab	oratory	y Use O	nly	
}																. 11:	S	amples Shippe	were:			imper Res		
1								2. Add	$\mu_{\mathbf{g}}$ $\mu_{\mathbf{h}}$	<u>U.</u>	Ba.	ا ع(<u>2` [</u>	<u> </u>	l'u b	<u>is</u>	- 1) - Ha	Shippe and Dei	ed -V livered	of) Presen ackage		
7	3 at	ac for	L339.35	57.366.37	72			3. Pb. S	6. Se/	I(: C1	FII	w,	W,	POY	SOy	Ai	rbill#_			2)	Unbrok	en on	Outer
1204 Of WC 104 (231), 33 1, 34 11 2						4. INHIA	I TPH	86	24 H.	06	125×	, OGC	\$ C _	OPW	1928 8314 (2000 Packs				ackage	_				
						5. ODE									3)	Receiv	ved in (Good	3)	3) Present on Sample (Y) or N				
_						5. 0 00	- 0 1/1									ondition	_	r N	4)	Unbrok	œn on			
					- -	6					-		===			Sampl roperty		ved		ample (_			
Relinquishe by	Relinquished Received Date Time Relinquish by					1	Received by		Date	Ti	me		crepano					(A)	N K		pon Sar	mple Re	ec't	
ļ		\(\lambda\)	1	 -	<u>_</u>	**PO	-	' 0	righ	IAL	_			nples Li C Reco		or(N).				Cooler 2.3 °C				
Hed Ex	b	1 Thurth	57.03	10:10				RI	WRI	HE	N-		NO	TES:		_	••	-10019	0	or N	Ť	emp. 💆	<u>13</u>	_ °C
1	led Ex Wymith 5703 10:10 CC					STE REWRITTEN					•													

FH-Central Plate	eau Project	C	HAIN OF CUST	ODY/S	AMPLI	E ANALY	YSIS	REQUES	<u> </u>	F	03-006-69	Page 1	of <u>I</u>
Collector Johansen/Pope/Pfister			any Contact Hulstrom	Telephor 373-39				Project Coord TRENT, SJ	inator	Price Code	8N	Data Tur	
Project Designation 200-PW-2/200-PW-4 OU -	Borehole Soil Sampling		ling Location -A-37 (C4106); (147.5'-l	50')				SAF No. F03-006		Air Quali	ty 🛄	45 1	Days r
Ice Chest No.	-01.063		Logbook No. F-N-3361		COA 117504ES	S10		Method of Shi Federal Exp		, 		· · · · · · · · · · · · · · · · · · ·	
	TRA Am	Offsit	e Property No.	7038	222			Bill of Lading	/Air Bill	No. 5 6	EE OSF	٧	
POSSIBLE SAMPLE HAZ R-live 4.	ARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	ne None	1				
	B16 WPO		Type of Container	aG	aG	aG	aG	3 89					
Special Handling and/or	cooly.		No. of Container(s)	i	1	1	1	1					:
•			Volume	120mL	60mL	120mL	60m	ու 60տւ				<u> </u>	
	SAMPLE ANÄL	YSIS		Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Speci Instruct	ial/					
							M	71/2			Tieto:		
Sample No.	Matrix *	Sample Date											
B16W86	SOIL	5/5/3	0900	1	+	X	/				Bloke	BIGI	200
		<u> </u>		 	 	 -			†		<u> </u>	 	
CH VI OF POORES		G: /D-:		<u> </u>	Jane			010	Spe	4/22/03		<u> </u>	Matrix *
CHAIN OF POSSESS Relinquished By/Removed From	Date/Time	Sign/Pri	ored in D	ate/Time	••		to achie	ONS Ve a detection limits sel range compound	of-50-0-p	GVg for Carbon	14. ** The labora	story is to	S=Sail
Retinquished By/Removed From	Dota/Time	D 1 D . #C		131)	' _ 1			m-89,90 Total Si		•	unF2321**Carbon=	14"16dine=	SE-Sethment SO=Solid SI=Sludge
	5.603 100		non Fraklan	5.6.00		, Nickel-63, Ne					,,		W = Water O=Où
Relinquished By/Removed From	Date/Time 1000	Received By/St	Aca m	ate/Time		Personnel	not ava		_ '				A=Air DS=Drum Solids DL=Drum Liquids
Relinquished By/Removed From	Date/Time	Received By/St		ate/Time		relinquish	sample	es from the 3728		<u>-</u>			T=Tissue W!=Wipe L=Liquid
Relinquished By/Removed From	5:7:03 /10:10 Date/Time	Received By/St	ored in D	Date/Time					-				V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By/St	ored In D)ate/Time									
LABORATORY Receive SECTION	i By	<u></u>		Т	itle	· <u>·</u>			· ·	···		Date/Time	1
FINAL SAMPLE Dispose DISPOSITION	l Method					Disp	osed By	·				Date/Time	

LIENT: TNU Hanford

urchase Order/Project:

DATE: 5.7.03

AF# DSOW# / Release #: FO 3-00L

aboratory SDG #:

IOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping D No DNA D see Comment # container intact, signed and dated? Outside of coolers or shipping containers are **I**Q Yes D No DNA D see Comment # free from damage? Airbill # recorded? X Yes D No D N/A D see Comment # All expected paperwork received (coc and DNo D N/A other client specific: historical data, D see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? Ų Yes D No D N/A ☐ see Comment # Custody seals on sample containers intact, D No. D N/A D see Comment # signed and dated? All samples on coc received? D No DNA D see Comment # 'Q' Yes D No DN/A All sample label information matches coc? .. D see Comment # Laboratory QC samples designated on coc? DY CS D No □ N/A ☐ see Comment # (QC stickers placed on bonles?) 10. Shipment meets LvLl Sample Acceptance D Yes □ No D N/A D see Comment # Policy? (identify all bonles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes D No D'N/A D see Comment # affixed to coc? X Yes D No DNA D see Comment # 12, coc signed and dated? 13. coc will be faxed or emailed to client? Yes. D No DN/A See Comment # 14. Project Manager/Client contacted PANA D Yes DNo ☐ see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ECC-01-063 /2.3"

Laboratory Sample Custodian:

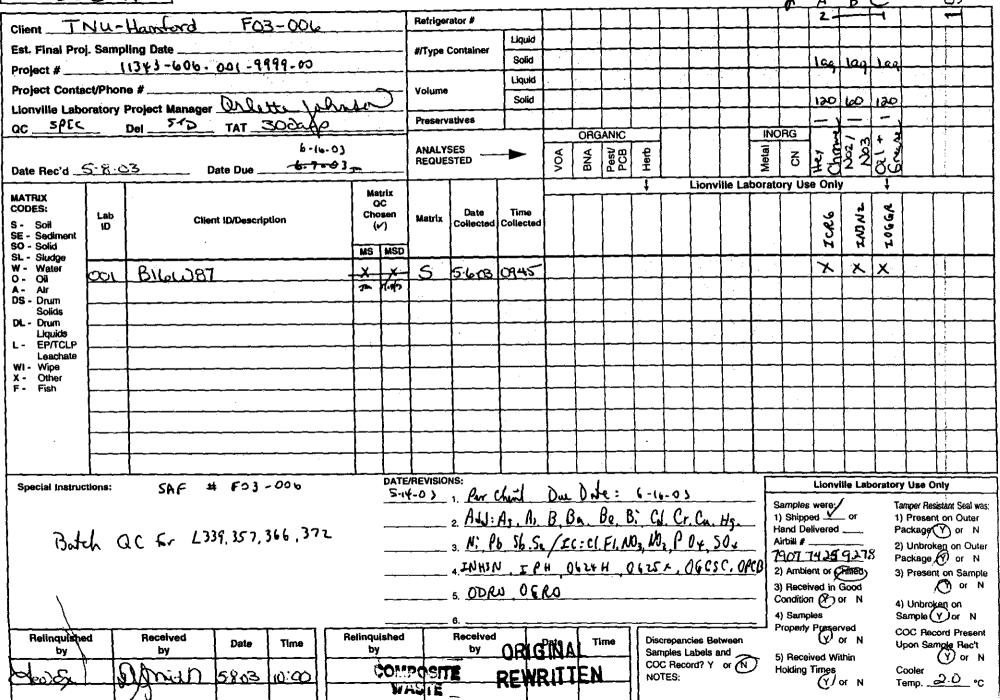
Laboratory Project Manager:

Dinien

Custody Transfer Record/Lab Work Request Page 1 of 1

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS



FH-Central Platea	u Proiect	CF	IAIN OF CUST	ODY/S	AMPLE	ANAL	YSIS	REQUEST		F03	-006-70	Page 1	of <u>1</u>
Collector Johansen/Pope/Pfister		Compa	ny Contact fulstrom	Telepho 373-3	ne No.			Project Coordin TRENT, SJ	ator	Price Code	8N	Data Tur	··· · · · · · · · · · · · · · · · · ·
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling		ing Location A-37 (C4106); (197.5'-2	200')				SAF No. F03-006		Air Quality		45 1	Dayso
Ice Chest No.	99.022	HNF	Logbook No. F-N-3361		COA 117504ES	10		Method of Ship Federal Expre		· 			
Shipped To ERERLINE SERVICES (For	RELLA merly TMA) ASP 4/2	Offsite	Property No.	A03E	22	>		Bill of Lading/	Air Bill	No. SE	EB	pc	
POSSIBLE SAMPLE HAZA	RDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Nor	ne None					
Special Handling and/or S	BI6WDO torage		Type of Container	aG	aG	aG	aG						
C	00140		No. of Container(s)	120mL	60mL	120mL	60u	/	· 	_			·
	· · · · · · · · · · · · · · · · · · ·		Volume	Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Greate -	See item Speci	iai / [<u> </u>				
	SAMPLE ANALYS	ıs					A	Alva di		Tieto:			
Sample No.	Matrix *	Sample Date	Sample Time										
B16W87	SOIL	5/6/03	0945	1	1	1	/			Blawo			-
CHAIN OF POSSESSIO	<u> </u>	Sign/Prin	t Names		SPE	CIAL INSTI	RUCTIO	ONS AGA	41	22/65		 	Matrix *
		Received By/Stor	red in D	ate/Time	,	he laboratory i it both kerosen	s to achie e and die	ONS / CA eve a detection timir of sel range compounds	r 30:00 pc from Wi	Civing foir Carbon=14. IPH-D analysis.	** The labora	tory is to	S=Soit SE=Sodiment
Relinquished By/Removed From	Date/Time 1000	Received By/Stor	red in D	ate/Time	10000	Technelium-99 Nickel 63; No	; Strontiu Planiaus	m-89,90 - Total Sr;		Thorium (Thorium-2	32); Carbon-	14; Iodins-	SO=Solid SI=Studge W = Water O=Oil A=Alt
Relinguished Bull amount From	5-7-03 Date/Time	Fed E	red in D	ate/Time	Pe	ersonnel not linguish sam	availab noles fro	le to	-				OS=Ocum Solids OL=Orum Liquids T=Tissue WI=Wipe
Relinquished By/Removed From		Received By/Stor		03 10:0 Pate/Time	R/	e[# <u>/ P</u>] or	<u> 5</u>	om the 3728					L=Liquid V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By/Stor	red In D	Pate/Time									
LABORATORY Received B SECTION	у	1, -, -		7	Fille	<u> </u>					<u> </u>	Date/Time	
FINAL SAMPLE Disposal M DISPOSITION	lethod		 			Disp	osed By					Date/Time	
								 					

LIENT: TNU Harrierd

irchase Order/Project:

DATE: 5.8.03

4F#) SOW#/Release #: FO3-OOL

aboratory SDG #:

aborate	ory SDG #: 0305L366				
OTE:	ALL ENTRIES MARKED "NO" MUST BE I	EXPLAINED IS	THE COMM	ENT SECTION	Υ
1.	Custody seals on coolers or shipping container intact, signed and dated?	197es	D No	D N/A	D see Comment #
2.	Outside of coolers or shipping containers are free from damage?	DYes .	□ No	□ N/A	D see Comment #
3.	Airbill # recorded?	GYes :	□ No	□ N/A	□ see Comment #
A.	All expected paperwork received (coc and other client specific; historical data, alpha/bets or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	D Yes	DNo	D N/A	□ see Comment#
5.	Sample containers are intact?	}3°Yes	DN ₀	DNA	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	Yes	□ No.	D N/A	D see Comment #
7.	All samples on coc received?	₩Yes	□ No	N/A	· D see Comment #
.8.	All sample label information matches coc?	Z Yes	D No	DN/A	see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	TOYes	□ N ₀ '	D N/A	D see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bonles not within policy. See reverse side for policy)	A Vies	_ D №	D N/A	□ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	D Yes	O No	AIHE	🗆 see Comment #
12.	coc signed and dated?	DYes .	D No	D N/A	D see Comment#
13.	coc will be faxed or emailed to client?	E Yes∗	D №	D N/A	D see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	. □ No	AWE	D see Comment #

Cooler # / temp (°C) and Comments:

ERC 99-022 /2.00

Laboratory Sample Custodian:

Laboratory Project Manager:

D Drien

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS



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Client IN	y -H	ANFORD	F03-006			Refrige	rator #								\Box			2		_1			7
Est. Final Prol. Sampling Date					#/Type	Container	Liquid								_	-			 			7.	
Project #		11343 - 606.	001-9999-00					Solid										A6	A6	116		+	 -
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Special Instruc	tions:	SAF # F	53-006		DATE	/REVISIO	ns:	cl.:t	ð.,	Dal	le :	6-16	-03				1	Lionvil	ile Lab	orator	y Use O	nly	
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FH-Central Plateau Project	CHA	IN OF CUST	ODY/S	AMPLE	ANALY	SIS	REQU	EST		F03	-006-71	Page 1	of <u>1</u>
Collector Johansen/Pope/Pfister	Company C LC Huist	Contact	Telephon 373-39	ie No.		1	Project Coordinator TRENT, SJ		Price Code 8N		8N	Data Tur	1
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampling Location 216-A-37 (C4106); (237.5'-240')						SAF No. F03-006			Quality		45]	Days
ice Chest No. ERC-01-040	Field Logb HNF-N-			COA 117504ES	10		Method o Federal	Shipment Express		· · · · · · · · · · · · · · · · · · ·	·		· c
Shipped To RELLA SHERLING SERVICES (Formerly 1MA) ALL 4/22/4	Offsite Pro	operty No.					Bill of La	ding/Air Bi	ill No.	see	059	と	.,
POSSIBLE SAMPLE HAZARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	ne No	•					
Special Handling and/or Storage	Т	ype of Container	аG	aG	aG	aG	· /	7		·		<u> </u>	
c pecini mananing analon ottorage	N	o. of Container(s)	1	1	1 1	60m	ıL 60				 	<u> </u>	
		Volume	120mL	60mL	120mL								
SAMPLE ANALYSIS			Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413,1	See item Speci Instruct	iai/	n - H3					
• i						N	11.			Til	10:		
	nple Date	Sample Time											<u> </u>
B16W88 SOIL 5-	7-03	1050	X	×	 X	 				DIC	WDC	}	
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CHAIN OF POSSESSION Relinquished By/Removed Room Chatc/Time Rec	Sign/Print Na cived By/Stored I よの内とビュ		te/Time		CIAL INSTI- The industry is not both kerosene	S IO ACIDE	eve a detectio	1 1411 of 50.0	PCVg for	22/63 Carbon-14.	** The labor	atory is to	Matrix *
	SOPALE _C	-/	ite/Time		Lechnetium-99,			-			2321: Carbon	-T4 todine-	SE=SerEment SO=Solid St=Studge
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<u></u>	eived By/Stored I $Ft\mathcal{D}$	n D	ate/Time	re	inquish samp f# <u>LB</u> on	ples fro /	m the 3728 <u>メープさ</u>	; 					T=Tissue WI=Wips L=Liquid
	cived By/Stored	1 1 D	ate/Time -9-03-	0930			•						V=Vegetation X=Other
	eived By/Stored	la D	ate/Time						_				
LABORATORY Received By SECTION			ī	Title								Date/Time	
UDOTTON													

IENT: THU HANGERD

chase Order/Project:

DATE: 5-9-03

F#/ SOW# / Release #: [-03-006

boratory SDG#: 0305C372

TE:	ALL ENTRIES MARKED "NO" MUST BE	EXPLAINED I	N THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	ØYes	D No	□ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	⊠ Yes	D No	D N/A	D sec Comment #
3.	Airbill # recorded?	☑Yes :	□ No	□ N/A	D see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	Ø√es	D No	□ N/A	Dace Comment#
5.	Sample containers are intact?	Ø Yes	D No	□ N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	Pa√yes	D No.	O N/A	☐ see Comment #
7.	All samples on coc received?	12 Yes	□ N ₀	D N/A	D see Comment #
8.	All sample label information matches coc?	E Yes	D No	□ N/A·	see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	Ø Yes	□ No	□ N/A	See Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	ETY.es	□ No	D N/A	D see Comment #
11.	Where applicable, bar code labels are affixed to coc?	O Yes	DN ₀	EDNIA	D see Comment #
12.	coc signed and dated?	D Yes	D No	D N/A	D see Comment #
13.	coc will be faxed or emailed to client?	Yes.	□ No	DN/A	D see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	D Yes	□ No	ENIA	See Comment #

Cooler # / temp (°C) and Comments:

1.5° ERC 01 -040

Laboratory Sample Custodian: Call Laboratory Project Manager:

DATE RECEIVED: 05/03/03 LVL LOT # :0305L339

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W84	001	s	03LE0577	04/30/03	05/14/03	05/16/03
B16W85	002	s	03LE0577	04/30/03	05/14/03	05/16/03
LAB QC:						
BLK	MB1	s	03LE0577	N/A	05/14/03	05/19/03
	MB1 BS	s	03LE0577	N/A	05/14/03	05/19/03

April 1 Add



DATE RECEIVED: 05/07/03

LVL LOT # :0305L357

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W86	001	s	03LE0577	05/05/03	05/14/03	05/19/03
LAB QC:						
BLK	MB1 MB1 BS	s s	03LE0577 03LE0577	N/A N/A	05/14/03 05/14/03	05/19/03 05/19/03

Alas (1813

DATE RECEIVED: 05/08/03 LVL LOT # :0305L366

CLIENT ID	LVL	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W87	001		s	03LE0577	05/06/03	05/14/03	05/16/03
B16W87	001	MS	S	03LE0577	05/06/03	05/14/03	05/19/03
B16W87	001	MSD	S	03LE0577	05/06/03	05/14/03	05/19/03
LAB QC:							
BLK	MB1		S	03LE0577	N/A	05/14/03	05/19/03
BLK	MB1	BS	S	03LE0577	N/A	05/14/03	05/19/03

Aprel 18/19

DATE RECEIVED: 05/09/03

LVL LOT # :0305L372

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W88	001	so	03LE0577	05/07/03	05/14/03	05/19/03
LAB QC:						
BLK	MB1 MB1 BS	s s	03LE0577 03LE0577	N/A N/A	05/14/03 05/14/03	05/19/03 05/19/03

Apaclals



Analytical Report

Client: TNU-HANFORD F03-006 LVL #: 0305L339, 0305L357,

0305L366, 0305L372

W.O. #: 11343-606-001-9999-00 Date Received: 05-03,07,08,09-2003

SDG/SAF # H2195/F03-006

DIESEL RANGE ORGANICS

Five (5) soil/solid samples were collected on 04-30-2003 and 05-05,06,07-2003.

The samples and their associated QC samples were extracted on 05-14-2003 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 05-16,19-2003. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8015B. The analysis met the intent of method WTPH-D.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. Samples were extracted and analyzed within required holding time.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. All surrogate recoveries were within acceptance criteria.
- 5. The blank spike recovery was within acceptance criteria.
- 6. The matrix spike recoveries were within acceptance criteria.
- 7. All initial calibrations associated with this data set were within acceptance criteria.
- 8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Jain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

som\r:\group\data\dro\tnu hanford\0305-339,357,366,372.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 2 4 pages.



GLOSSARY OF DIESEL RANGE ORGANICS DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- **DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- **DF** = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.



GLOSSARY OF DIESEL RANGE ORGANICS DATA

- **D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C = This flag applies to a compound that has been confirmed by GC/MS.

DIESEL RANGE ORGANICS BY GC

Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L339 BLK BLK BS B16W85 B16W84 Cust ID: 03LE0577-MB1 03LE0577-MB1 002 RFW#: 001 Sample SOIL SOIL SOIL SOIL Matrix: Information 1.00 1.00 1.00 1.00 D.F.: mq/Kq mg/Kq Units: mg/Kg mg/Kg p-Terphenvl 99 82 <u>پ</u> 106 91 % Diesel Range Organics_ 13.1 U 12.9 U 12.0 U 74 % Kerosene 13.1 U 12.9 U 12.0 U 12.0 U

Thuch 13

Report Date: 06/18/03 10:3400

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

DIESEL RANGE ORGANICS BY GC

Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L357 BLK BS BLK B16W86 Cust ID: 03LE0577-MB1 03LE0577-MB1 Sample RFW#: 001 SOIL SOIL SOIL Matrix: Information 1.00 1.00 D.F.: 1.00 mg/Kg mg/Kg Units: mq/Kq p-Terphenyl 80 % 106 કૃ 91 Diesel Range Organics 12.4 U 12.0 U 74 % Kerosene 12.4 U 12.0 U 12.0 U

Macs 1-413

Report Date: 06/18/03 10:34

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Report Date: 06/18/03 10:34

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

	Cust ID:	B16W8	7	B16W87	,	B16W87	,	BLK		BLK BS		
Sample	RFW#:	00:	1	001 MS	;	001 MSD)	03LE0577-M	B1	03LE0577-M	B 1	
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
	D.F.:	1.0		1.0	0	1.0	0	1.0	0	1.0	0	
•	Units:	mg/1		mg/K	(g	mg/K	ζg	mg/K	g	mg/K	g	
	p-Terphenyl	82	<u> </u>	73	<u>-</u> -	69	*	106	*	91	- 	
=======================================	=======================================	===== <i>=</i>	==f1=	****	==fl=:	=========	==f1		-f1			f
Diesel Range Organ	ics	12.3		61	*	55	*	12.0		74	- <u>-</u>	
Kerosene		12.3	U	12.3	Ü	12.3	Ü	·	Ū	12.0	-	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

DIESEL RANGE ORGANICS BY GC

Client: TNUHANFORD F03-006 H2195 Work Order: 11343606001 Page: 1 RFW Batch Number: 0305L372 BLK BS B16W88 BLK Cust ID: 03LE0577-MB1 03LE0577-MB1 Sample RFW#: 001 SOLID SOIL SOIL Information Matrix: 1.00 D.F.: 1.00 1.00 mq/Kq Units: mq/Kg mq/Kq p-Terphenyl 84 % 106 % 91 % Diesel Range Organics 12.2 U 12.0 U 74 **%** Kerosene 12.2 U 12.0 U 12.0 U

Alderbodis

Report Date: 06/18/03 10:35

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page ____ of ____

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FH-Central Plateau Project	СНА	IN OF CUST	ODY/S	AMPL	E ANALY	ISIS	REQUEST		FU3)-UUO-0 /	1.202	
Collector Johansen/Pope/Pfister	Company LC Huls		Telephor 373-39				Project Coordin TRENT, SJ	ator P	rice Code	8N		rnaround
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampling 216-A-3	Location 7 (C4106); (72.5'-75	<u>)</u>				SAF No. F03-006	A	ir Quality		45 . 	Days
Ice Chest No. FRC -01.038	Field Logi HNF-N-			COA 117504E	ES10		Method of Ships Federal Expres		· ·			က
Shipped To REZ RA EBERLINE SERVICES (Formerly TMA) 15/2 4/14/03	Offsite Pr	operty No.	1030	27	z (· ·	Bill of Lading/A	ir Bill No		E	15PC	-
POSSIBLE SAMPLE HAZARDS/REMARKS Radiose +		Preserva tion	Cool 4C	Cool 4C	Cool 4C	Noo	e None					
Vic TO BIGWDO Special Handling and/or Storage	T	ype of Container	aG	aG	aG	aG	aG/					
COS 14°L	N	o. of Container(s)	1 120mL	l 60mL	1 120mL	60m					ļ	
		Volume	Chromium	NO2/NO3		See item (_/		 	 		
SAMPLE ANALYSIS			Hex - 7196	353,2	413.1	Specia Instructi				ł		
						N	y _{lv}		Tiet	b :		
Sample No. Matrix * Samp	le Date	Sample Time							<u> </u>	 <u>Luna jarana</u>		
B16W84 SOIL 4-3	0-03	1900	+		X	L			Bilen	∞		
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	gn/Print Na				ECIAL INSTR			,	403			Matrix *
	d By/Stored In	5 W2 430	te/Time 03 143(ort both kerosene	and dies	e a detection limit of all range compounds f	rom WTPH-	D analysis	** The laborat	tory is to	S=Soil SE=Sediment
Relinquished By/Removed From Date/Time Receive	d By/Stordd In		te/Time (4		Technetium 99, 1 9; Niekel-63; Nept	Strontium unium-2	1-89,90 — Total Sr, le 37			321: Carbon-1	4: lodine-	SO=Solid Si=Sludge W = Water
Relinquished By/Removed From Date/Time O Receive	d By/Stored In	Da	te/Time 10	00			181	- 4/	12/03			O=Oti A=Atr DS=Drum Solids
Relinquished By/Removed From Date/Time 1000 Receive	d By/Stored In	Pachilin	E-Time	-172								DL=Drum Liquids T=Tuses WI=Wipc
Relinquished By/Removed From Date-Piline Receive 5303 11:00	d ByAstones In	$\begin{array}{ccc} Da & & & & & & \\ Da & & & & & & & \\ Da & & & & & & & \\ Da & & & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & & \\ Da & & & & \\ Da & & & & \\ Da & & & & \\ Da & & & & \\ Da & & & & \\ Da & & & & \\ Da & & & & \\ Da & & & & \\ Da & & & & \\ Da & & & & \\ Da & & & \\ Da & & & & \\ Da & & & \\ Da & & & \\ Da & & & \\ Da & & & \\ Da & & & \\ Da & & & \\ Da & & & \\ Da & & \\ Da & & & \\ Da & & \\ Da & & & \\ Da &$	te/Time	. .								L=Liquid V=Vegetation X=Other
	d By/Stored In		te/Time	-								
LABORATORY Received By SECTION			Tit	ie						I	Date/Time	
FINAL SAMPLE Disposal Method DISPOSITION	· · · · · · · · · · · · · · · · · · ·				Dispos	ed By					Date/Time	

COMETEN CONTROL OF Finder Coordinator Triples Coordinator TRIPS SAN Project Coordinator TRIPS SAN Project Designation Sampling Learning Children 373-3928 STORES SAN No. 170-00 SAN No. 170-00 Sampling Learning Children SAN No. 170-00 SAN NO. 170-00 SAN NO. 170-0	FH-Central Platea	u Project	CI	HAIN OF CUST	ODY/S	AMPLI	EANAL	YSIS	REQUEST	<u>' </u>	F03	-006-68	Page 1	of 1
Top-way 2000-PWA OU - Borrhole Sail Sampling 206-A37 (Cal 105), (975-100) FO3-006 FO3-00	Collector		Comp	any Contact	Telepho	ne No.			Project Coording	etor	Price Code	8N		ł
Shipped To Cot of Cont		orehole Soil Sampling	Sampl 216	ing Location -A-37 (C4106); (97.5'-10	0')						Air Quality		45	Days 😽
POSSIBLE SAMPLE HAZARDSHEAMARS Cod 4C Cod 4C Nose Nose	E/4	C01-038					310				<u>.</u>			
Special Handling and/or Storage Type of Constainer No. of Contai	Shipped To EBERLING SERVICES (For	TRAI merty TMA)	(/22/c} Offsite	e Property No.	030	9 22	1		Bill of Lading/	Air Bill N	ia. 55	5 05	PC_	
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SAMPLE ANALYSIS Chriminian NO20163: See item (1) by Trivian 13 pages in Immediate Supposed From Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored in Destriction Processed By/Stored In Destriction Processed By	Special Handling and/or S	torage		 	1	1	1	1	1					
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Sample No. Matrix * Sample Date Sample Time B16W85 SOIL 4-30-03 /328 B16W85 CHAIN OF POSSESSION Sign/Print Names Relinquished By/Rendeved From Date/Time 4 13-2 Received By/Stored in Date/Time 4 13-2 Received By/Stored in Date/Time 4 13-2 Received By/Stored in Date/Time 4 13-2 Received By/Stored in Date/Time 4 13-2 Received By/Stored in Date/Time 4 13-2 Received By/Stored in Date/Time 4 13-2 Received By/Stored in Date/Time 6 10-00 Received By/Stored in Date/Time 6 10-00 Received By/Stored in Date/Time 6 10-00 Received By/Stored in Date/Time 6 10-00 Received By/Stored in Date/Time 6 10-00 Received By/Stored in Date/Time 6 10-00 Received By/Stored in Date/Time 6 10-00 Received By/Stored in Date/Time 6 10-00 Received By/Stored in Date/Time 7 10-00 Received By/Stored in Date/Time 8 10-00 Received By/Stored in Date/Time 8 10-00 Received By/Stored in Date/Time 7 10-00 Received By/Stored in Date/Time 8 10-00 Received By/Stored in Date/Time 8 10-00 Received By/Stored in Date/Time 8 10-00 Received By/Stored in Date/Time 8 10-00 Received By/Stored in Date/Time 8 10-00 Received By/Stored in Date/Time 8 10-00 Received By/Stored in Date/Time 8 10-00 Received By/Stored in Date/Time 8 10-00 Received By/Stored in Date/Time 9 10-00 Received		O MARIE SARIA I	Moto					Speci	ù / [
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DISPOSITION		ethod					Dispo	osed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TUU Hanford

archase Order/Project:

DATE: 5.3.03

AF#/ SOW# / Release #: F03.006

aboratory SDG #:

M305L339 IOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION 1. Custody seals on coolers or shipping D No DNA ☐ see Comment # container intact, signed and dated? 2. Outside of coolers or shipping containers are D Yes D No DNA ☐ see Comment # free from damage? 3. Airbill # recorded? Ç∵Yes D No D N/A ☐ see Comment # All expected paperwork received (coc and D No Yes D N/A other client specific: historical data, 🖾 see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) 5. Sample containers are intact? ØYes D No □ N/A ☐ see Comment # Custody seals on sample containers intact, D No DNA ☐ see Comment # signed and dated? All samples on coc received? □ No DNA D see Comment # Yes D No D N/A All sample label information matches coc? · D see Comment # Laboratory QC samples designated on coc? D Yes D No ☐ see Comment # (QC stickers placed on bottles?) 10. Shipment meets LvLl Sample Acceptance Yes Yes D No D N/A Sec Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are D Yes □ No **₩**N/A See Comment # affixed to coc? ĞDYes D No □ N/A D see Comment # 12. coc signed and dated? 13. coc will be faxed or emailed to client? E Yes □ No D N/A see Comment # 14. Project Manager/Client contacted EZ N/A D Yes D No D see Comment #

Cooler # / temp (°C) and Comments:

ERC 01-038/0.6

concerning discrepancies? (name/date)

Laboratory Sample Custodian:

Laboratory Project Manager:

2.XMmith

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Lionville	Laboratory	Use	Only

Custody Transfer Record/Lab Work Request Page 1 of 1

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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L - EP/TCLP Leachate	 		-, * -			+		 	 		 							_	\neg					
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FH-Central	l Plateau Pro	ject	CI	IAIN OF CUST	ODY/S	AMPL	LE ANAL	YSIS	RE	QUEST		F0:	3-006-69	Page 1	of 1
Collector Johansen/Pope/Pfis	ter	*	Compa	iny Contact Hulstrom	Telephor 373-39	ne No.			Proj	ect Coordii NT, SJ	otor I	Price Code	8N	Data Tur	J
Project Designation 200-PW-2/200-PW	-4 OU - Borchole	Soil Sampling		ing Location -A-37 (C4106); (147.5'-1	50')				SAF F03-			Air Quality	′ 🗆	45 1	Days
Ice Chest No.	ERC 0	1.063		Logbook No. F-N-3361		COA 117504	ES10			hod of Ship ederal Expre					
Shipped To EBERLINE SERV	RECKA	15m		Property No.	7030	222			Bill	of Lading/	Air Bill N	10. SE	E OSF	r_	·
POSSIBLE SAMPI	LE HAZARDS/RI	EMARKS		Preservation	Cool 4C	Cool 40	C Cool 4C	No	ne	None					
1	TO BIG W	-		Type of Container	a-G	aG	aG	aC	3	*g					
Special Handling	and/or Storage	1400	!	No. of Container(s)	1	1	1	1		l 60mL			 		<u> </u>
·				Volume	120mL	60mL		60n	_	/			ļ		
	S	AMPLE ANĂL	YSIS		Chromium Hex - 7196	NO2/NO: 353.2		See item Spec instruc	ا ما	Tritium - H3			Tata		
Sample No	 	Matrix *	Sample Date	Sample Time	Y N N								Tieto:		
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SECTION	 						Dia	posed By				 	<u> </u>	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method							hosen by						Date : file	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Hanford

irchase Order/Project:

DATE: 5.7.03

AF# DSOW# / Release #: FO 3-00L

aboratory SDG #:

aborate	ory SDG:#: 0305L351				
OTE:	ALL ENTRIES MARKED "NO" MUST BE I	EXPLAINED IN	THE COMM	ENT SECTION	T
1.	Custody seals on coolers or shipping container intact, signed and dated?	Cires	□ No	D N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	O(Yes	□ No	D N/A	☐ see Comment #
3.	Airbill # recorded?	Y(Yes :	D No	□ N/A	□ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	∭Yes	□ No	DNA	See Comment#
5.	Sample containers are intact?	Yes	□ No	□ N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	D Yes	D No.	□N/A	☐ see Comment #
7.	All samples on coc received?	Y Yes	□N₀	DN/A	· D see Comment #
8.	All sample label information matches coc?	Yes	D No	DN/A	□ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	De Yes	□ N ₀	D N/A	D see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	E(Yes	□ No	OWA	□ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	D Yes	□ No	ONA	See Comment #
12.	coc signed and dated?	Yes	D No	□ N/A	See Comment #
13.	coc will be faxed or emailed to client?	E Yes.	□ 7 0	D N/A	see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	. □ No	ENIA	See Comment #

Cooler # / temp (°C) and Comments:

ERC-01-063 /2.3"

Laboratory Sample Custodian:

Laboratory Project Manager:



(6) VOH, DAM, MING FIRM, IMPAN, WILL, MINA

Lionville	Laboratory	Use	Only

Custody Transfer Record/Lab Work Request Page 1 of 1

O	VLL
	COOK A THE EARLY STORE IN C.

03051366

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

											- 1		——					₩. 1	' -			T		
ClientT	Ju-	Hambord	FO:	3-006		}	Refriger	ator #											2-					
Est. Final Proj							#/Type (Container	Liquid														┽╾╃	
Project #	1	1343-606.	001-9	999-00	·	}			Solid				\rightarrow						100	lag	164		++	
Project Conta	ct/Phor	10 #				<u> </u>	Volume		Liquid						∤									
Lionville Labo	ratory	Project Manager	Orga	the John	An	싀			Solid	-						+			150	<i>ω</i> Ω	190		++	\dashv
QC SPEC		Del 515	TAT	<u>302afo</u>			Preserv	atives	1		ORG	ANIC	\Box				INO	96	-)				+	
				6-14-03		_ }	ANALY:			4			٩			ŀ			<u>,</u> §	22 C	+ 3		1	ł
Date Rec'd	<u>3-8-3</u>	<u> </u>	ate Đư e _	-6-7-03	<u></u>		REQUE	STED		VOA BNA Pest/ PCB						Metal	Con Con Con Con Con Con Con Con Con Con						- 1	
					T	trix							1		Lionvi	lle Lat	oorato				1			
MATRIX CODES:	Lab				C	C sen		Date	Time			·							_ [,1	Ų		- 1	- 1
S - Soil	ID	Clier	nt ID/Descri _l	ption	,	/)	Matrix	Collected		1				İ	. !				ICRE	INBAL	1066A		1	- [
SE - Sediment SO - Solid					MS	MSD											!		ĭ	ភ	4	.	1	- 1
SL - Sludge W - Water	-	811. 207			T _V	V	5	5.603	1945		·								X	X	X			
O - Oil A - Air	001	B16W87			7	14	<u> </u>	3.605	0173	 						· ·	-						f	
DS - Drum Solids		 			-	1-1	<u> </u>	 		 			-				-						1	
DL - Drum		 			╂			ļ		 								}						
Liquids L - EP/TCLP					—			ļ <u>.</u>	ļ	 -	 -						<u> </u>			 -		 	12	
Leachate WI - Wipe		<u> </u>	, <u></u>		<u> </u>					<u> </u>	<u> </u>	 	 			-	<u> </u>	 	·	<u> </u>	 			
X - Other F - Fish		<u> </u>						<u> </u>	<u> </u>	L		<u> </u>								<u> </u>	 			
			· ·					<u> </u>		<u> </u>			<u> </u>	<u> </u>			L				<u> </u>			
					T				<u> </u>		}		1				·							
1					1												l							
	 				1-									1										
Special instruct	lone:	SAF #	Fol	-006		DATE/	REVISIO	NS:			<u>, , , , , , , , , , , , , , , , , , , </u>		<u>, </u>	 -					Lionvi	le Lab	oratory	Use Or	nly	
)	ijoria,	SHF -	, , , ,			2-14	-0)	1. <u>Per (</u>	المسل	<u>D</u> <u></u>	02	<u>e ઃ</u>	6-16	-07			- s	amples	were:/	<u> </u>	Ta	mper Resi	stant Se	al was:
j				_				2 AJJ:	Az . Az	BB	4	}e, B	C.	<u> Cr.</u>	Cu	45.	1)	Shippe and De	ed 🛂	_ or	1)	Present	on Ou	iter
Bate	1 0	C Fr L33	19.357,	366,372				3. N: P										irbill#_			21	ckage Unbroki		
1304	,, ,																. 7	707]	474	<u>۱۲۶۶</u>	P _i	ackage (Ø or	N
ł								4. INHIA		•	4 64 1	H	1614	~	4.5	COPU		Ambie Receiv			3)	Present	t on Sa	
								5. ODR	n of	<u>eo</u>							- c	ondition	rectinic (β ²)c	acou ⊩N	41	۸ Unbrok	_	
\								6									4	Sampl	es			ample (N
Relinquishe	d T	Received	Date	Time	Relinqu	ished	$T^{==}$	Received		Date -	Ti	me	Disc	repanc	ies Bet	ween	Р	roperly	Presen (y)	ved or N		OC Reco		
by		by	Date		by		by ORGINAL Samples Labels and 5) F					5) Received Within Y or N												
Denos.	\	Mount	5803	10:00		(MIO)	0817	E	REWE	LILS	EN			CES:	rd? Y	or (N	H	olding "	Times (Y) c	nr Ni	C	ooler emp. <u>_</u> g		
WASIE								عملصور	~~									ψ,	rs 4%	**	anp⊆			

FH-Central Platea	u Project	CI	HAIN OF CUST	ODY/S	AMPLE	ANAL	YSIS	REQUEST		F03	-006-70	Page 1	of 1
Collector Johansen/Pope/Pfister		Comps	nny Contact Hulstrom	Telephor 373-39	ne No.			Project Coordina TRENT, SJ	itor	Price Code	8N	Data Tur	- 1
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling		ing Location -A-37 (C4106); (197.5'-2	.00')			·	SAF No. F03-006		Air Quality		45 1	Days
Ice Chest No. FRC	99.022	HNI	Logbook No. F-N-3361		COA 117504ES	10		Method of Shipm Federal Expres					20
Shipped To EBERLINE SERVICES (For	RELLA merly TMA) ASP 4/2	Offsite	e Property No.	403E	22	>		Bill of Lading/A	ir Bill N	o. SE	E B	pc	
POSSIBLE SAMPLE HAZA	RDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None	-				
Special Handling and/or S	BILWDO		Type of Container	aG	aG	aG	aG	39					
C C	0014°C		No. of Container(s)	1	1	1	1	L 60mL				<u> </u>	
			Volume	120mL	60mL	120mL	60m						
	SAMPLE ANALYS	IS		Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Speci Instruct	ai/1				: :	
		_					AY	álv.		Tieto:			
Sample No.	Matrix *	Sample Date	Sample Time										
B16W87	SOIL	5/6/03	0945	1	1	1	/			Brown		ļ	
							 	- 		 -		 	
													<u> </u>
		<u> </u>											
CHAIN OF POSSESSIO Relinquished By/Removed From My/Yorsen Medical	Date/Time 25/6/03 100	Sign/Prin Received By/Stor	red in D	ate/Time 163 110	V repor	he taboratory is t both kerosene	s to achie and dies	ONS / S/L ve a detection their of sel range compounds fi	om WTP	H-D analysis.		-	Matrix * S-Soit SE-Schinent SO-Solid
Relinquished By/Removed From	7-703	Received By/Stor		ate/Time		echnetium-99; Nickel 63; Ne	Strontill Human-2	n-89,90 = Total Sr; Is 197	HZZ		32); Carbon-1	t 4, Iudine	Si=Sturige W = Water O=Oil
Relinquished By/Removed From F		Received By/Sto		ate/Time				7		•			A=Air DS=Drum Solids DL=Drum Liquids
	5.6.03 (0:00	Received By Ato	ced in D	ate/Time		rsonnel not i		ne to om the 3728	_				T=Tissue W!=Wipe L=Liquid
Relinquished By/Removed From	Date/Time	Received By/Sto	red in D	ate/Time	Ke	t#/ <u>/</u> /-01	1 <u>2</u> _ /	1 <u>7 /0 5</u>					V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By/Sto	red in D	ate/Time									
LABORATORY Received B	y .	1 <u> </u>		T	itle							Date/Time	<u> </u>
FINAL SAMPLE Disposal M DISPOSITION	ethod					Disp	osed By	·	 _			Date/Time	
L													

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

irchase Order/Project:

DATE: 5.8.03

SOW#/Release#: FO3-006

aboratory SDG #:

E:	ALL ENTRIES MARKED "NO" MUST BE I	EXPLAINED II	A THE COWW	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	19Yes	□ No	O N/A	☐ see Comment s
2.	Outside of coolers or shipping containers are free from damage?	byes.	□ No	D N/A	D see Comment
	Airbill # recorded?	TSY'es	□ No	D N/A	D see Comment
1.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	SLY es	□ N ₀	DN/A	D see Comment
i.	Sample containers are intact?)⊒Yes	D No	DNA	□ see Comment
٠,	Custody seals on sample containers intact, signed and dated?	Yes	□ No.	DNA	D see Commen
1.	All samples on coc received?	Yes	DNo	DNA	· D see Commen
	All sample label information matches coc?	Z Yes	□ No	D N/A·	D see Commen
,	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	T/Yes	□ N ₀	D N/A	D see Commen
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	Ø Y.es	D No	D N/A	D see Commen
11.	Where applicable, bar code labels are affixed to coc?	D Yes	D No	S) HIA	D see Comme
12.	coc signed and dated?	Dives	□ No	DNA	D see Comme
13.	coc will be faxed or emailed to client?	TYes-	□ No	D N/A	□ see Comme
4.	Project Manager/Client contacted concerning discrepancies? (name/date)	r Yes	□ No	BNA	□ see Comme

Cooler # / temp (°C) and Comments:

ERC 99-022 /2.0"

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

03054372

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

	O	VLI
ŀ	BC	LIONVILLE LABORATORY INC.

																		A_{-}	<u>D</u>	<u></u>			_
Client TN	υ - H	ANFORD FO	3-006			Retrige	rator #											2.		-1		-	
Est. Final Pro	ol. Samo	iling Date				#/Type	Container	Liquid															4
Project #		11343-606.001	- 9999-00					Solid										A6	146	IAG.			
		ne #		<u> </u>		Volume	1	Liquid			-					- 1					-		 -
Lionville Lab	oratory	Project Manager	0.7					Solid	 			ļ <u> </u>						120	60	120		+	 -
OC ZDEC	<u> </u>	DelTAT	30 g	41_		Preserv	ratives	<u> </u>		OPG	ANIC	<u> </u>				INC)BG		72	1.		+	_
			6-16-0		ı	ANALY		_	├			Æ	1				7,13	ther.	۲۰,	0,72	ı İ	-	ŀ
Date Rec'd	<u>5-9</u>	-03 Date Due	6-8-0 2	<u>~~</u>		REQUE	STED		δ Š	BNA	Pest/ PCB	Herb				Metal	Ö	Hex	رورا	GPF_		<u>:</u>	<u>. </u>
MATRIX	<u> </u>			Ma	trix							Ţ		Lionv	ille La	borato	ory Us	e Only	/	1			
CODES:	Lab	Oil- + IDDoor	-:al		C Sen	Matrix	Date	Time		•			•						_4	ي			l
S - Soil SE - Sediment	ID	Client ID/Desc	npuon	(^	Madix	Collected	Collected	1	1					!			46	ZNCVI	TOGGE			
SO - Solid SL - Sludge	<u> </u>	·		MS	MSD				<u> </u>		<u> </u>	ļ					<u> </u>	4	14	17	 	}	
W - Water O - Oil	001	B16W88		1		50	5-703	1050			<u> </u>					<u> </u>	ļ	1	1	1			
A - Air DS - Drum				2	5/1463				<u> </u>		L											í	<u> </u>
Solids DL - Drum																	<u> </u>			<u> </u>			
Liquids L - EP/TCLP														L				ļ. 					
Leachate	Leachate																				[_]		
WI - Wipe X - Other				1					T														
F - Fish													1									į	
		1			† · · ·				1								·						
				+	 	 	1	 	1	1		 	 		1								1
				1	 	 	 	 	 	+	_		 	1	 	1	 	1	1-	1	 		
Special Instruc	ctione:	CAC + GAZ	001-		DATE	REVISIO	NS:		٠					<u> </u>	<u>. </u>	┶	 -	Lionvi	ille Lat	orator	Use O		-
Special menti	uona.	SAF # FO3	-038	٠	5-0	4-03	1. Per	Chent	Dry	<u>لەل</u> .	<u>e:</u>	6-16	-03	-		- s	amples				moer Resi		eal was
		•		÷		<i>-</i>	2. Add	Ag , As	8	Ba B	e B	: Cd	Cr	Cu Hs	. N. 1	16 1) Shippe land De	ed 🚄	⊆or	1)	Present	tog Ou	uter
T	batch	QC For 1339, 357,	566,512				3. Sh.S										irbill # _	<u>ئ ۍ څ</u>	<u> </u>		ackage) Unbrok	_	
							4. TAH	•			_					- <u>-</u>	6 G. Ambie	10W	==	P	ackage (Ø or	N
								•	,	011.		10 <u>0</u> 7	, o 4	<u> </u>	-, -,) Ambie) Recei	_		3)	Presen	t on Sa	
-							5. ODRO	1 . U h./	(0							- c	ondition	n 🕜 c		4) Unbrok	en on	
							6		==	-			===		===) Samp roperly	ies Presec	yed		ample (
Relinquishe by							Received by		Date) TI	me		crepand				roperly				pon San	пріе Ве	ec't
	1	by	1 4020			SITE			Date Time Discrepancies Between Samples Labels and COC Record? Y or N					- 5) Received Within			(V) o	τN					
FEDEX	Ex Cal by 5-9-03 0930 10" CONTROLL REWR							H	EN			TES:	_	_			0	or N		emp/	.5	_ °C	
1		· [1 11					1		1		1 79	15	891:	2 85	67							

FH-Central Plateau Project	CH	AIN OF CUST	ODY/S	AMPLI	E ANALY	YSIS	RE(UEST		F	03-006-71	Page 1	of <u>1</u>
Collector Johansen/Pope/Pfister	Compan	y Contact ulstrom	Telephot 373-39	ie No.				ct Coordin	-+	Price Code	8N	Data Tur	
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		ng Location A-37 (C4106); (237.5'-2	40°)				SAF 1 F03-0			Air Quali	ty 🗆	45]	Days
Ice Chest No. ERC-01-04/0	I HNF	ogbook No. -N-3361		COA 117504E	S10			od of Ship leral Expre		·			23
Shipped To REGA EBERLINE SERVICES (Formerly TMA) AGE 4/22/4)	Offsite	Property No.					Bill	of Lading//	Nir Bill i	No. 5e.	e 05F	と	
POSSIBLE SAMPLE HAZARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e	None	, 				
Special Handling and/or Storage	[Type of Container	æG	aG	aG	aG		ag/					
Special Franching and/or Storage		No. of Container(s)	1	,	1	1		\int_{-1}^{1}				<u> </u>	
	}	Volume	120mL	60mL	120mL	60m	/	60mL					
			Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Speci	iá /	Tritium - H3					
SAMPLE ANALYSIS			<u> </u>			1	(~X	,					
						M	*//			1i	LTO:		
\	nple Date	Sample Time											
B16W88 SOIL 5-	7-03	1050	X.	×	+~	 				$\frac{D}{D}$	IUWDC	2	 -
				1	 	┼─			-			- 	1
		- 	 			 							
· 	Sign/Print		ota Tima		ECIAL INSTI	RUCTION	ONS	(ection limit o	5/1- 1 30.0 pc	4/22/6	; 14. ** The labo	ratory is to	Matrix *
Relinquished By/Removed Right State Time S. Pate Time S.	J 07AL E		7B4	(40) rep	ort both kerosen	e and die	sel rang	e compounds	from WT	PH-D analysis		•	S=Soil SE=Sediment SO=Solid
Relinquished By/Removed/From Date/Time Rece	eived By/Stor		ate/Time 3 /44		Techsettum-99 9; Nickel-63, Ne			7 - Total Sr,		horium (Thori		n-T4; lodi ne-	SimStudge W = Water O=Oil
	eived By/Stor		ate/Time	1 _	ersonnel not a	availabl	la ta	14	.,	, ,			A=Air DS=Drum Solids
	eived By/Stor		ate/Time	re	linquish sam	oles fro	m the	3728					DL=Drum Liquids T=Tussue WI=Wipe
Relinquished By/Removed From Date/Time Rece	F2c	D FX	ate/Time	"	ef# <u>[6</u> _on	_3_/		<u> </u>					L=Liquid V=Vegetation X=Other
FEUEX 5-9-03 0930		Tark Hung 5	-9-03 -	0930									}
Relinquished By/Removed From Date/Time Reco	eived By/Stor	red in \nearrow											
LABORATORY Received By SECTION			Ī	Title	•							Date/Time	
FINAL SAMPLE Disposal Method DISPOSITION				 -	Disp	osed By			<u> ".</u>			Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

JENT: THU HANGORD

rchase Order/Project:

DATE: 5-9-03.

F#/SOW#/Release#: [=03-006

iboratory SDG#: 03056372

OTE:	ALL ENTRIES MARKED "NO" MUST BE		THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	ØYes	, D No	□ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	⊠Yes .	D No	D N/A	D see Comment #
3.	Airbill # recorded?	₩ Yes	D No	D N/A	D see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	ØYes	□ No	□ N/A	☐ see Comment#
5.	Sample containers are intact?	Ø Yes	□ No	□ N/A	C) see Comment #
6.	Custody seals on sample containers intact, signed and dated?	□ Yes	D No	D N/A	C) see Comment #
7.	All samples on coc received?	12 Yes	□ No	D N/A	See Comment #
8.	All sample label information matches coc?	₽ Yes	D No	D N/A	a see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	Ø Yes	DNo	D N/A	☐ see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	Z Yes	D No	□ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	D Yes	D No	DINA	See Comment #
12.	coc signed and dated?	□ Yes	□ No	D N/A	See Comment #
13.	coc will be faxed or emailed to client?	Œ Yes∙	□ No	D N/A	D see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	D Yes	D No	MNA	☐ sec Comment #

Cooler # / temp (°C) and Comments:

1.5° ERC 01 -040

Laboratory Sample Custodian:

Laboratory Project Manager:

Cal thing



DATE RECEIVED: 05/03/03 LVL LOT # :0305L339

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
B16W84						
SILVER, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
SILVER, TOTAL	001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
SILVER, TOTAL	001 MS	S	03L0284	04/30/03	05/22/03	05/31/03
ARSENIC, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
ARSENIC, TOTAL	001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
ARSENIC, TOTAL	001 MS	S	03L0284	04/30/03	05/22/03	05/31/03
BORON, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
BORON, TOTAL	001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
BORON, TOTAL	001 MS	S	03L0284	04/30/03	05/22/03	05/31/03
BARIUM, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
BARIUM, TOTAL	001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
BARIUM, TOTAL	001 MS	S	03L0284	04/30/03	05/22/03	05/31/03
BERYLLIUM, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
BERYLLIUM, TOTAL	001 REP	s	03L0284	04/30/03	05/22/03	05/31/03
BERYLLIUM, TOTAL	001 MS	S	03L0284	04/30/03	05/22/03	05/31/03
BISMUTH, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
BISMUTH, TOTAL REP	001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
BISMUTH, TOTAL SPIKE	001 MS	s	03L0284	04/30/03	05/22/03	05/31/03
CADMIUM, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
CADMIUM, TOTAL	001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
CADMIUM, TOTAL	001 MS	s	03L0284	04/30/03	05/22/03	05/31/03
CHROMIUM, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
CHROMIUM, TOTAL	001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
CHROMIUM, TOTAL	001 MS	s	03L0284	04/30/03	05/22/03	05/31/03
COPPER, TOTAL	001	s	03L0284	04/30/03	05/22/03	05/31/03
COPPER, TOTAL	001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
COPPER, TOTAL	001 MS	s	03L0284	04/30/03	05/22/03	05/31/03
MERCURY, TOTAL	001	S	03C0122	04/30/03	05/21/03	05/22/03
MERCURY, TOTAL	001 REP	s	03C0122	04/30/03	05/21/03	05/22/03
MERCURY, TOTAL	001 MS	S	03C0122	04/30/03	05/21/03	05/22/03
NICKEL, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
NICKEL, TOTAL	001 001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
NICKEL, TOTAL	001 KEP	S	03L0284	04/30/03	05/22/03	05/31/03
LEAD, TOTAL	001 MS	S	03L0284	04/30/03	05/22/03	05/31/03
		S	03L0284	04/30/03	05/22/03	05/31/03
LEAD, TOTAL	001 REP	5	40204co	04/30/03	05/22/03	05/31/03

DATE RECEIVED: 05/03/03 LVL LOT # :0305L339

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	001 MS	s	03L0284	04/30/03	05/22/03	05/31/03
ANTIMONY, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
ANTIMONY, TOTAL	001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
ANTIMONY, TOTAL	001 MS	S	03L0284	04/30/03	05/22/03	05/31/03
SELENIUM, TOTAL	001	S	03L0284	04/30/03	05/22/03	05/31/03
SELENIUM, TOTAL	001 REP	S	03L0284	04/30/03	05/22/03	05/31/03
SELENIUM, TOTAL	001 MS	S	03L0284	04/30/03	05/22/03	05/31/03
B16W85						
SILVER, TOTAL	002	s	03L0284	04/30/03	05/22/03	05/31/03
ARSENIC, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
BORON, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
BARIUM, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
BERYLLIUM, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
BISMUTH, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
CADMIUM, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
CHROMIUM, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
COPPER, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
MERCURY, TOTAL	002	S	03C0122	04/30/03	05/21/03	05/22/03
NICKEL, TOTAL	002	s	03L0284	04/30/03	05/22/03	05/31/03
LEAD, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
ANTIMONY, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
SELENIUM, TOTAL	002	S	03L0284	04/30/03	05/22/03	05/31/03
AB QC:						

SILVER LABORATORY	LC1 BS	s	03L0284	N/A	05/22/03	05/30/03
SILVER, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
ARSENIC LABORATORY	LC1 BS	s	03L0284	N/A	05/22/03	05/30/03
ARSENIC, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
BORON LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
BORON, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
BARIUM LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
BARIUM, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
BERYLLIUM LABORATORY	LC1 BS	s	03L0284	N/A	05/22/03	05/30/03
BERYLLIUM, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
BISMUTH, LCS	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03

DATE RECEIVED: 05/03/03 LVL LOT # :0305L339

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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BISMUTH, TOTAL	MB1	s	03L0284	N/A	05/22/03	05/30/03
CADMIUM LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
CADMIUM, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
CHROMIUM LABORATORY	LC1 BS	s	03L0284	N/A	05/22/03	05/30/03
CHROMIUM, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
COPPER LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
COPPER, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
MERCURY LABORATORY	LC1 BS	S	03C0122	N/A	05/21/03	05/22/03
MERCURY, TOTAL	MB1	S	03C0122	N/A	05/21/03	05/22/03
NICKEL LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
NICKEL, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
LEAD LABORATORY	LC1 BS	s	03L0284	N/A	05/22/03	05/30/03
LEAD, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
ANTIMONY LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
ANTIMONY, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
SELENIUM LABORATORY	LC1 BS	s	03L0284	N/A	05/22/03	05/30/03
SELENIUM, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03

LVL LOT # :0305L357

DATE RECEIVED:

BARIUM, TOTAL

BISMUTH, LCS

BISMUTH, TOTAL

CADMIUM, TOTAL

CHROMIUM, TOTAL

COPPER, TOTAL

COPPER LABORATORY

BERYLLIUM, TOTAL

CADMIUM LABORATORY

CHROMIUM LABORATORY

BERYLLIUM LABORATORY

05/07/03

COLLECTION EXTR/PREP ANALYSIS CLIENT ID /ANALYSIS LVL # MTX PREP # B16W86 SILVER, TOTAL 001 03L0284 05/05/03 05/22/03 S 05/30/03 ARSENIC, TOTAL 001 S 03L0284 05/05/03 05/22/03 05/30/03 BORON, TOTAL 001 S 03L0284 05/05/03 05/22/03 05/30/03 05/05/03 05/22/03 BARIUM, TOTAL 001 S 03L0284 05/30/03 BERYLLIUM, TOTAL 001 S 03L0284 05/05/03 05/22/03 05/30/03 05/22/03 S 03L0284 05/05/03 BISMUTH, TOTAL 001 05/30/03 05/05/03 05/22/03 CADMIUM, TOTAL 001 03L0284 05/30/03 CHROMIUM, TOTAL 001 S 03L0284 05/05/03 05/22/03 05/30/03 COPPER, TOTAL 001 S 03L0284 05/05/03 05/22/03 05/30/03 MERCURY, TOTAL S 03C0122 05/05/03 05/21/03 05/22/03 001 NICKEL, TOTAL 03L0284 05/05/03 05/22/03 05/30/03 001 05/22/03 LEAD, TOTAL S 03L0284 05/05/03 05/30/03 001 001 S 03L0284 05/05/03 05/22/03 05/30/03 ANTIMONY, TOTAL 05/22/03 03L0284 05/05/03 05/30/03 SELENIUM, TOTAL 001 LAB QC: SILVER LABORATORY LC1 BS S 03L0284 N/A 05/22/03 05/30/03 SILVER, TOTAL 03L0284 N/A 05/22/03 05/30/03 MB1 03L0284 N/A 05/22/03 05/30/03 ARSENIC LABORATORY LC1 BS N/A ARSENIC, TOTAL 03L0284 05/22/03 05/30/03 MB1 S BORON LABORATORY LC1 BS S 03L0284 N/A 05/22/03 05/30/03 N/A 05/22/03 05/30/03 BORON, TOTAL MB1 S 03L0284 BARIUM LABORATORY LC1 BS S 03L0284 N/A 05/22/03 05/30/03

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LC1 BS

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DATE RECEIVED: 05/07/03

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
		_ —				
MERCURY LABORATORY	LC1 BS	S	03C0122	N/A	05/21/03	05/22/03
MERCURY, TOTAL	MB1	S	03C0122	N/A	05/21/03	05/22/03
NICKEL LABORATORY	LC1 BS	s	03L0284	N/A	05/22/03	05/30/03
NICKEL, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
LEAD LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
LEAD, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
ANTIMONY LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
ANTIMONY, TOTAL	MB1	s	03L0284	N/A	05/22/03	05/30/03
SELENIUM LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
SELENIUM, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03

DATE RECEIVED: 05/08/03 LVL LOT # :0305L366 LVL # MTX PREP # COLLECTION EXTR/PREP ANALYSIS CLIENT ID /ANALYSIS B16W87 SILVER, TOTAL 001 S 03L0284 05/06/03 05/22/03 05/30/03 ARSENIC, TOTAL 001 S 03L0284 05/06/03 05/22/03 05/30/03 BORON, TOTAL 001 S 03L0284 05/06/03 05/22/03 05/30/03 BARIUM, TOTAL 001 S 03L0284 05/06/03 05/22/03 05/30/03 S 03L0284 05/06/03 BERYLLIUM, TOTAL 001 05/22/03 05/30/03 S BISMUTH, TOTAL 001 03L0284 05/06/03 05/22/03 05/30/03 CADMIUM, TOTAL S 03L0284 05/06/03 05/22/03 001 05/30/03 CHROMIUM, TOTAL 001 S 03L0284 05/06/03 05/22/03 05/30/03 COPPER, TOTAL 001 S 03L0284 05/06/03 05/22/03 05/30/03 MERCURY, TOTAL S 03C0122 001 05/06/03 05/21/03 05/22/03 NICKEL, TOTAL 001 S 03L0284 05/06/03 05/22/03 05/30/03 LEAD, TOTAL 05/22/03 S 03L0284 05/06/03 001 05/30/03 ANTIMONY, TOTAL 001 S 03L0284 05/06/03 05/22/03 05/30/03 S 03L0284 SELENIUM, TOTAL 001 05/06/03 05/22/03 05/30/03 LAB QC: SILVER LABORATORY LC1 BS S 03L0284 N/A 05/22/03 05/30/03 SILVER, TOTAL MB1 S 03L0284 N/A05/22/03 05/30/03 N/A 05/22/03 ARSENIC LABORATORY LC1 BS 03L0284 05/30/03 ARSENIC, TOTAL MB1 03L0284 N/A 05/22/03 05/30/03 S BORON LABORATORY LC1 BS S 03L0284 N/A 05/22/03 05/30/03 BORON, TOTAL MB1 S 03L0284 N/A 05/22/03 05/30/03 BARIUM LABORATORY LC1 BS S 03L0284 N/A 05/22/03 05/30/03 BARIUM, TOTAL 05/22/03 MB1 S 03L0284 N/A 05/30/03 BERYLLIUM LABORATORY LC1 BS S 03L0284 N/A 05/22/03 05/30/03 BERYLLIUM, TOTAL MB1 S 03L0284 N/A 05/22/03 05/30/03 BISMUTH, LCS LC1 BS 03L0284 N/A 05/22/03 05/30/03 BISMUTH, TOTAL MB1 S 03L0284 N/A05/22/03 05/30/03 CADMIUM LABORATORY S 03L0284 N/A 05/22/03 05/30/03 LC1 BS CADMIUM, TOTAL MB1 S 03L0284 N/A 05/22/03 05/30/03 CHROMIUM LABORATORY LC1 BS S 03L0284 N/A 05/22/03 05/30/03 CHROMIUM, TOTAL MB1 S 03L0284 N/A 05/22/03 05/30/03 COPPER LABORATORY LC1 BS S 03L0284 N/A 05/22/03 05/30/03 COPPER, TOTAL S 03L0284 N/A 05/22/03 05/30/03 MB1

DATE RECEIVED: 05/08/03

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
MERCURY LABORATORY	LC1 BS	s	03C0122	N/A	05/21/03	05/22/03
MERCURY, TOTAL	MB1	S	03C0122	N/A	05/21/03	05/22/03
NICKEL LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
NICKEL, TOTAL	MB1	s	0310284	N/A	05/22/03	05/30/03
LEAD LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
LEAD, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
ANTIMONY LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
ANTIMONY, TOTAL	MB1	s	03L0284	N/A	05/22/03	05/30/03
SELENIUM LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
SELENIUM, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03

DATE RECEIVED: 05/09/03 LVL LOT # :0305L372

CLIENT ID /ANALYSIS	TAT	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16 W 88							
SILVER, TOTAL	001		so	03L0284	05/07/03	05/22/03	05/30/03
ARSENIC, TOTAL	001		so	03L0284	05/07/03	05/22/03	05/30/03
BORON, TOTAL	001		SO	03L0284	05/07/03	05/22/03	05/30/03
BARIUM, TOTAL	001		SO	03L0284	05/07/03	05/22/03	05/30/03
BERYLLIUM, TOTAL	001		so	03L0284	05/07/03	05/22/03	05/30/03
BISMUTH, TOTAL	001		SO	03L0284	05/07/03	05/22/03	05/30/03
CADMIUM, TOTAL	001		so	03L0284	05/07/03	05/22/03	05/30/03
CHROMIUM, TOTAL	001		so	03L0284	05/07/03	05/22/03	05/30/03
COPPER, TOTAL	001		so	03L0284	05/07/03	05/22/03	05/30/03
MERCURY, TOTAL	001		SO	03C0122	05/07/03	05/21/03	05/22/03
NICKEL, TOTAL	001		so	03L0284	05/07/03	05/22/03	05/30/03
LEAD, TOTAL	001		so	03L0284	05/07/03	05/22/03	05/30/03
ANTIMONY, TOTAL	001			03L0284	05/07/03	05/22/03	05/30/03
SELENIUM, TOTAL	001		so	03L0284	05/07/03	05/22/03	05/30/03
SILVER LABORATORY	LC1	BS	s	03L0284	N/A	05/22/03	05/30/03
SILVER, TOTAL	MB1		S	03L0284	N/A	05/22/03	05/30/03
ARSENIC LABORATORY	LC1	BS	S	03L0284	N/A	05/22/03	05/30/03
ARSENIC, TOTAL	MB1		S	03L0284	N/A	05/22/03	05/30/03
BORON LABORATORY	LC1	BS	S	03L0284	N/A	05/22/03	05/30/03
BORON, TOTAL	MB1		s	03L0284	N/A	05/22/03	05/30/03
BARIUM LABORATORY	LC1	BS	S	03L0284	N/A	05/22/03	05/30/03
BARIUM, TOTAL	MB1		S	03L0284	N/A	05/22/03	05/30/03
BERYLLIUM LABORATORY	LC1	BS	S	03L0284	N/A	05/22/03	05/30/03
BERYLLIUM, TOTAL	MB1		S	03L0284	N/A	05/22/03	05/30/03
BISMUTH, LCS	LC1	BS	s	03L0284	N/A	05/22/03	05/30/03
BISMUTH, TOTAL	MB1		s	03L0284	N/A	05/22/03	05/30/03
CADMIUM LABORATORY	LC1	BS	S	03L0284	N/A	05/22/03	05/30/03
CADMIUM, TOTAL	MB1		S	03L0284	N/A	05/22/03	05/30/03
CHROMIUM LABORATORY	LC1	BS	s	03L0284	N/A	05/22/03	05/30/03
CHROMIUM, TOTAL	MB1		S	03L0284	N/A	05/22/03	05/30/03
COPPER LABORATORY							
COPPER, TOTAL	LC1 MB1		S S	03L0284 03L0284	N/A N/A	05/22/03 05/22/03	05/30/03 05/30/03

DATE RECEIVED: 05/09/03 LVL LOT # :0305L372

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
MERCURY LABORATORY	LC1 BS	S	03C0122	N/A	05/21/03	05/22/03
MERCURY, TOTAL	MB1	S	03C0122	N/A	05/21/03	05/22/03
NICKEL LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
NICKEL, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
LEAD LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
LEAD, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
ANTIMONY LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
ANTIMONY, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03
SELENIUM LABORATORY	LC1 BS	S	03L0284	N/A	05/22/03	05/30/03
SELENIUM, TOTAL	MB1	S	03L0284	N/A	05/22/03	05/30/03



Analytical Report

Client: TNU-HANFORD F03-006 LVL#: 0305L339, 357, 366, 372 SDG/SAF#: H2195/F03-006 W.O.#: 11343-606-001-9999-00 Date Received: 05-03, 07, 08, 09-03

METALS CASE NARRATIVE

- 1. This narrative covers the analyses of 5 soil samples.
- 2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.
- 3. All analyses were performed within the required holding times.
- 4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.
- 6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
- 7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
- 8. All ICP Interference Check Standards were within control limits.
- 9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.
- 10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
- 11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration level for the following analytes:

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 35 pages.

		\underline{PDS}	<u>PDS</u>
Sample ID	Element	Concentration (ppb)	% Recovery
B16W84	Antimony	100	97.3

- 12. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
- 13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
- 14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

gmb/m05-339, 357, 366, 372





METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: $0305 \pm 339 \pm 357$, 366 , 372										
	Leaching Procedure:131013111312Other:									
CLP Metals Di	gestion and Analysis	Methods:ILM0	3.0 _ILM04.	0						
Metals Digestion Methods:3005A3010A30153020A3050B3051200.7SS17Other:										
Metals Analysis Methods										
	SW846	EPA	STD MTD	EPA OSWR	TIC APPRIA BALL					
43		200.7	SIDMID	OSWK	USATHAMA					
Aluminum	6010B 6010B 7041 5				99					
Antimony	6010B _7041 5 6010B _7060A 5		2112D		99					
Arsenic	6010B/000A	200.7206.2 200.7	3113B		99					
Barium	6010B	200.7		,	99					
Beryllium	6010B	200.7		1620	99					
Bismuth Boron	56010B	200.7		1020	99 99					
Cadmium	76010B 7131A 5	200.7			99 99					
Calcium	6010B/151A	200.7			99 99					
Chromium	√6010B _7191 ⁵	200.7 218.2								
Cobalt	6010B	200.7			99					
Copper	Z6010B 7211 5	200.7220.2								
Iron	6010B	200.7			99					
Lead	76010B 7421 5	200.7239.2	3113B		99					
Lithium	6010B7430 ⁴	200.7		_1620	99					
Magnesium		200.7			99					
Manganese	6010B	200.7			₉₉					
Mercury	_7470A' _7471A'	245.1 ¹ 245.5 ¹			99					
Molybdenum	6010B	200.7			<u></u> 99					
Nickel	<u>∠6010B</u>	200.7			99					
Potassium	6010B7610 ⁴	200.7258.1 4			99					
Rare Earths	6010B ¹	200.7 1		1620	99					
Selenium	6010B7740 ⁵	200.7270.2	3113B		99					
Silicon	6010B ¹	200.7		1620	99					
Silica	6010B	200.7		1620	99					
Silver	_6010B 7761 ⁵	200.7272.2			99					
Sodium	6010B7770 ⁴	200.7273.1 4			99					
Strontium	6010B	200.7		•	_99					
Thallium	_6010B _7841 ⁵	200.7279.22	00.9		99					
Tin	6010B	200.7			99					
Titanium	_6010B	200.7			99					
Uranium	6010B ¹	200.7 1		1620	_99					
Vanadium	6010 B	200.7			99					
Zinc	6010B	200.7			99					
Zirconium	6010B ¹	200.7 ¹		1620	99					
Other:	Method	l <u>:</u>		1WI-033	M-03/01					

METHOD REFERENCES AND DATA QUALIFIERS

DATA OUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LCS = Laboratory Control Sample.

NC = Not calculated.

ANALYTICAL METAL METHODS

- 1. Not included in the method element list.
- 2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).
- 3. Flame AA.
- 4. Graphite Furnace AA.

L-WI-033/N-04/98

INORGANICS DATA SUMMARY REPORT 06/04/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L339

REPORTING

DILUTION

WORK	ORDER:	11343-606-001-9999-00
------	--------	-----------------------

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
======		10255741722255751222		====		
-001	B16W84	Silver, Total	0.13 u	MG/KG	0.13	1.0
		Arsenic, Total	2.0	MG/KG	0.35	1.0
		Boron, Total	0.57	MG/KG	0.20	1.0
		Barium, Total	108	MG/KG	0.02	1.0
		Beryllium, Total	0.38	MG/KG	0.01	1.0
		Bismuth, Total	0.54 u	MG/KG	0.54	1.0
		Cadmium, Total	0.04 บ	MG/KG	0.04	1.0
		Chromium, Total	.6.3	MG/KG	0.11	1.0
		Copper, Total	17.2	MG/KG	0.06	1.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Nickel, Total	8.4	MG/KG	0.14	1.0
		Lead, Total	3.7	MG/KG	0.24	1.0
		Antimony, Total	0.23 u	MG/KG	0.23	1.0
		Selenium, Total	0.45 u	MG/KG	0.45	1.0

INORGANICS DATA SUMMARY REPORT 06/04/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00

					REPORTING	DITUITON
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
***					******	
-002	B16W85	Silver, Total	0.12 u	MG/KG	0.12	1.0
		Arsenic, Total	2.B	MG/KG	0.34	1.0
	•	Boron, Total	0.47	MG/KG	0.20	1.0
		Barium, Total	123	MG/KG	0.02	1.0
		Beryllium, Total	0.39	MG/KG	0.01	1.0
		Bismuth, Total	0.53 u	MG/KG	0.53	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
	•	Chromium, Total	7.8	MG/KG	0.10	1.0
		Copper, Total	16.5	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	14.3	MG/KG	0.13	1.0
		Lead, Total	4.1	MG/KG	0.24	1.0
		Antimony, Total	0.36	MG/KG	0.23	1.0
		Selenium, Total	0.43 u	MG/KG	0.43	1.0

INORGANICS DATA SUMMARY REPORT 06/04/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
2722746	**************	*******		=====	*****	*****
-001	B16W86	Silver, Total	0.12 u	MG/KG	0.12	1.0
		Arsenic, Total	2.7	NG/KG	0.33	1.0
		Boron, Total	0.94	MG/KG	0.19	1.0
		Barium, Total	63.2	MG/KG	0.02	1.0
		Beryllium, Total	0.33	MG/KG	0.01	1.0
		Bismuth, Total	0.52 u	MG/KG	0.52	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	10.2	MG/KG	0.10	1.0
		Copper, Total	9.7	MG/KG	0.06	1.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
	•	Nickel, Total	8.9	MG/KG	0.13	1.0
		Lead, Total	3.3	MG/KG	0.23	1.0
		Antimony, Total	0.23	MG/KG	0.22	1.0
		Selenium, Total	0.43 u	MG/KG	0.43	1.0

INORGANICS DATA SUMMARY REPORT 06/04/03

CLIENT: TNUKANFORD F03-006 H2195

MODK	OPDER:	11343-606-001-9999-00

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
===X===	***********	E Y = 2 2 E = 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			********	*****
-001	B16W87	Silver, Total	0.12 u	MG/KG	0.12	1.0
		Arsenic, Total	1.4	MG/KG	0.34	1.0
		Boron, Total	0.67	MG/KG	0.19	1.0
		Barium, Total	44.9	MG/KG	0.02	1.0
		Beryllium, Total	0.29	MG/KG	0.01	1.0
		Bismuth, Total	0.52 u	MG/KG	0.52	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	23.5	MG/KG	0.10	1.0
		Copper, Total	8.5	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	17.1	MG/KG	0.13	1.0
		Lead, Total	2.3	MG/KG	0.23	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.43 u	MG/KG	0.43	1.0

INORGANICS DATA SUMMARY REPORT 06/04/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00

				REPORTING	DILUTION
SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
*********					******
B16W88	Silver, Total	0.1 ს	MG/KG	0.1	1.0
	Arsenic, Total	1.8	MG/KG	0.27	1.0
	Boron, Total	0.66	MG/KG	0.16	1.0
	Barium, Total	53.8	MG/KG	0.02	1.0
	Beryllium, Total	0.26	MG/KG	0.008	1.0
	Bismuth, Total	0.42 u	MG/KG	0.42	1.0
	Cadmium, Total	0.03 u	MG/KG	0.03	1.0
	Chromium, Total	10.6	MG/KG	0.08	1.0
	Copper, Total	12.0	MG/KG	0.05	1.0
	Mercury, Total	0.02 u	MG/KG	0.02	1.0
	Nickel, Total	7.7	MG/KG	0.11	1.0
	Lead, Total	13.1	MG/KG	0.19	1.0
	Antimony, Total	1.5	MG/KG	0.18	1.0
	Selenium, Total	0.34 u	MG/KG	0.34	1.0
	生型化量医学院收益性检查性	Bl6W88 Silver, Total Arsenic, Total Boron, Total Barium, Total Beryllium, Total Bismuth, Total Cadmium, Total Chromium, Total Copper, Total Mercury, Total Nickel, Total Lead, Total Antimony, Total	B16W88 Silver, Total 0.1 u Arsenic, Total 1.8 Boron, Total 0.66 Barium, Total 53.8 Beryllium, Total 0.26 Bismuth, Total 0.42 u Cadmium, Total 0.03 u Chromium, Total 10.6 Copper, Total 12.0 Mercury, Total 0.02 u Nickel, Total 7.7 Lead, Total 13.1 Antimony, Total 1.5	B16W88 Silver, Total 0.1 u MG/KG Arsenic, Total 1.8 MG/KG Boron, Total 0.66 MG/KG Barium, Total 53.8 MG/KG Beryllium, Total 0.26 MG/KG Bismuth, Total 0.42 u MG/KG Cadmium, Total 0.03 u MG/KG Chromium, Total 10.6 MG/KG Copper, Total 12.0 MG/KG Mercury, Total 12.0 MG/KG Nickel, Total 7.7 MG/KG Lead, Total 13.1 MG/KG Antimony, Total 1.5 MG/KG	SITE ID

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/04/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0305L339,367,366,372

REPORTING

DILUTION

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
***	2 三 三 章 拉	*************	******			
BLANK1	03L0284-MB1	Silver, Total	0.12 u	MG/KG	0.12	1.0
		Arsenic, Total	0.33 u	MG/KG	0.33	1.0
		Boron, Total	0.19 u	MG/KG	0.19	1.0
		Barium, Total	0.03	MG/KG	0.02	1.0
		Beryllium, Total	0.02	MG/KG	0.01	1.0
		Bismuth, Total	0.51 u	MG/KG	0.51	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.10 u	MG/KG	0.10	1.0
	•	Copper, Total	0.06 u	MG/KG	0.06	1.0
		Nickel, Total	0.13 u	MG/KG	0.13	1.0
		Lead, Total	0.23 u	MG/KG	0.23	1.0
		Antimony, Total	0.22 u	MG/KG	0.22	1.0
		Selenium, Total	0.42 u	MG/KG	0.42	1.0
BI.AMV1	03C0122-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

INORGANICS ACCURACY REPORT 06/04/03

CLIENT: TNUHANFORD F03-006 H2195
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0305L339

			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	THUOMA	*RBCOV	factor (spk)
*******	***************	*****		****	*****	******	
-001	B16W84	Silver, Total	4.9	0.13u	5.3	92.5	1.0
		Arsenic, Total	192	2.0	210	90.6	1.0
		Boron, Total	93.0	0.57	105	88.0	1.0
		Barium, Total	332	108	210	106.8	1.0
		Beryllium, Total	5.1	0.38	5.3	89.1	1.0
		Bismuth, Total	488	0.54u	525	92.9	1.0
		Cadmium, Total	4.8	0.04u	5.3	90.6	1.0
		Chromium, Total	26.3	6.3	21.0	95.2	1.0
		Copper, Total	42.5	17.2	26.3	96.2	1.0
		Mercury, Total	0.19	0.02	0.16	94.9	1.0
		Nickel, Total	56.8	8.4	52.5	92.2	1.0
		Lead, Total	51.5	3.7	52.5	91.0	1.0
		Antimony, Total	31.1	0.23u	52.5	59.2	1.0
		Selenium, Total	182	0.45u	210	86.8	1.0

0.45u

0.45u

NC

1.0

INORGANICS PRECISION REPORT 06/04/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0305L339

				INITIAL			DILUTION
SAM	PLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	FACTOR (REP)
===	====	************	*******		******		
-00	1REP	B16W84	Silver, Total	0.13u	0.13u	NC	1.0
		•	Arsenic, Total	2.0	2.4	18.2	1.0
			Boron, Total	0.57	0.26	75.2	1.0
			Barium, Total	108	130	18.8	1.0
			Beryllium, Total	0.38	0.36	4.6	1.0
			Bismuth, Total	0.54u	0.54u	NC	1.0
			Cadmium, Total	0.04u	0.04u	NC	1.0
			Chromium, Total	6.3	5.3	17.2	1.0
			Copper, Total	17.2	16.2	6.0	1.0
			Mercury, Total	0.02	0.02u	NC 8 OD	1.0
			Nickel, Total	8.4	8.8	4.7	1.0
			Lead, Total	3.7	3.8	2.7 76/4)	1.0
			Antimony, Total	0.23u	0.23u	NC '/	1.0

Selenium, Total

INORGANICS LABORATORY CONTROL STANDARDS REPORT 06/04/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0305L339 357, 366, 372

			SPIKED	SPIKED		
SAMPLE	SITE ID	ANALYTE	Sample	AMOUNT	UNITS	RECOV
======================================	25 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	********	*****	*****	****	*****
LCS1	03L0284-LC1	Silver, LCS	49.1	50.0	MG/KG	98.2
		Arsenic, LCS	931	1000	MG/KG	93.1
		Boron, LCS	471	500	MG/KG	94.2
		Barium, LCS	505	500	MG/KG	100.9
		Beryllium, LCS	24.2	25.0	MG/KG	96.B
		Bismuth, LCS	491	500	MG/KG	98.2
		Cadmium, LCS	24.6	25.0	MG/KG	98.4
	•	Chromium, LCS	50.6	50.0	MG/KG	101.2
		Copper, LCS	127	125	MG/KG	101.8
		Nickel, LCS	200	200	MG/KG	99.9
-		Lead, LCS	243	250	MG/KG	97.4
		Antimony, LCS	291	300	MG/KG	97.0
		Selenium, LCS	890	1000	MG/KG	89.0
LCS1	03C0122-LC1	Mercury, LCS	6.8	6.2	MG/KG	109.8

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

FIELD DEDOONNEL COMDITEE ONLY QUADED ADEAC

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A.	LIONVILLE LABORATORY INC.

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Client	Nu-	Hamford	F	03-0	06	Refrige	rator #											2					
Est. Final Pro	y Sem	nling Date				#/Tune	Container	Liquid															
Project #		11347-606.	001- 99	199-00		#11ype		Solid									.]	١٥٩	lea	loc		ا ب	<u></u>
olect Conta	ct/Pho	ne #		4*		Volume		Liquid										<u> </u>		<u> </u>	<u> </u>		
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Sediment Solid		Ì				4				l	}							TCR	S-603 N	3		1	}
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Liquids EP/TCLP		<u> </u>		 			 	<u> </u>	┼	 		<u> </u>						├	 	┼	 -	+-	+-
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							5. ODRO) GGR	0					· ·		- 3) - C) Recei ondition	vedin n (Y) n	Good or N		4) Unbroi	φου ου (Δ) (
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FH-Central Platea	u Project	CI	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST F03-006-67 Page 1											of <u>1</u>
Collector Johansen/Pope/Pfister		Compa	nny Contact Hulstrom	Telephor 373-3	ne No.				Project Coordina TRENT, SJ	tor	Price Code	8N	Data Tur	1
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling		ing Location -A-37 (C4106); (72.5'-75	i)					SAF No. F03-006	A	Air Quality		45 J	Days
Ice Chest No.	-01.038	Field I	Logbook No. F-N-3361		COA 117504	4ES10			Method of Shipn Federal Express					
Shipped To REZ A EBERLINE SERVICES (FOR POSSIBLE SAMPLE HAZA	Meriy TMA) 154	4/14/05 Offsite	Property No.	703	02	21			Bill of Lading/A	ir Bill N	^{0.} ≤€	EE	SAL	
POSSIBLE SAMPLE HAZA Radiose	RDS/REMARKS †•* ve	7	Preservation	Cool 4C	Cool 4	ıc co	ol 4C	Non	e None					
Special Handling and/or S	Type of Container	aG	aG		G	вG	aG/							
	COS 14°L No. of Contains						1	1						<u> </u>
			Volume	120mL	60mL	L 12	OmL	60m.	L 60mL			<u> </u>		
		Chromium Hex - 7196	NO2/NO 353.2		Gresse - 1	See item Specia Instructi	ĕZ(. (
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Sample No.	Matrix *	Sample Date	Sample Time				7					· · · · · · · · · · · · · · · · · · ·	i Si Maria da Cara de Maria de Cara de Cara de Cara de Cara de Cara de Cara de Cara de Cara de Cara de Cara de Cara Maria de Cara de Cara de Cara de Cara de Cara de Cara de Cara de Cara de Cara de Cara de Cara de Cara de Cara	<u> </u>
B16W84	SOIL	4-30-0	3 1900	<u>+</u>	+	` 	<u> </u>				Bleh		┼	
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LABORATORY Received By	Date/Time	Received By/Sto			itle		·_		 _		 _	· · · · · · · · · · · · · · · · · · ·	Date/Time	1
SECTION FINAL SAMPLE Disposal M DISPOSITION							Dispos	ed By	<u> </u>				Date/Time	

FH-Central Plates	u Project	CI	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST F03-006-68 Page 1									
Collector Johansen/Pope/Pfister		Comp	nny Contact Hulstrom	Telepho: 373-3	ne No.			Project Coordinator TRENT, SJ	Price Code	8N	Data Tur	•
Project Designation 200-PW-2/200-PW-4 OU - B	orehole Soil Sampling		ing Location -A-37 (C4106); (97.5'-10	00')	 _			SAF No. F03-006	Air Quality		45 1	Days ———
	C01-038	Field I HN	Logbook No. F-N-3361		COA 1175041	ES10	•	Method of Shipment Federal Express	·	······		
Shipped To EBERLINE SERVICES (For POSSIBLE SAMPLE HAZA	TEAN MELL S	1/22/e} Offsite	e Property No.	4030) Z	<u></u>		Bill of Lading/Air B	ill No. 55	E 051	PC	
POSSIBLE SAMPLE HAZA	RDS/REMARKS		Preservation	Cool 4C	Cool 40	C Cool 4C	Non	ne None				
Treto	BIGNDI		Type of Container	aG	aG	аG	a G	; 19				
Special Handling and/or S	-00140C		No. of Container(s)	1	1	i	i					
			Volume	120mL	60mL NO2/NO		60m					<u></u>
	SAMPLE ANAL	YSIS	•	Chromium Hex - 7196			Spec	±àí/} }				
							Ray	alville"	Tio	10:		
Sample No.	Matrix *	Sample Date	Sample Time									
B16W85	SOIL	4-30-0	3 /238	1.	X	1 4	V_{-}		BILL	ADI .		
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CHAIN OF POSSESSIO		Sign/Pri	nt Names		SI	PECIAL INSTI	RUCTI	ONS ASY2-	1/22/03	*****		Matrix *
Religanished By/Removed From	2 4/20/03/43D			Date/Time -30-03 14		ne laboratory i port both kerosen	s to actile e and die	sel range compounds from '	PCI/g for Carbon-14. WTPH-D analysis.	** I ne laborat	ory is to	S=Soil SE=Sediment
Relinquished By/Removed From	Date/Time / 4, 2	Received By/Sto	ored in	Date/Time / Y	130 4			m-89,90 — Total Sr; Isotopi	c Thorum (Thorium-	232]; Carbon-1	4; lodine-	SO=Solid SI=Sludge W = Water
Relinquished By/Removed From	1.5 4.30 'Q'			30 03 Date/Time 10		29, Nickel-63, Ne	piumum.	4/22/0	3 950			O=Oli A=Air
Relinquished By/Removed From	5-Z-03	Received By/Sto	O Ritchber	5.2-6								DS-Drum Solids DL-Drum Liquid: T-Tissue
	Redate/Time 100	> / (-ed)	E-	Date/Time								W!=Wipe L=Liquid V=Vegetation
Relinquished By/Removed From	— Da te/Time 5.3.03 //:0		17 miss 5	Date/Time 3-03 //:	∞							X=Other
Relinquished By/Removed From	Date/Time	Received By/86	ored In	Date/Time					<u> </u>			<u> </u>
LABORATORY Received B	ly			1	l'itle						Date/Time	·
FINAL SAMPLE Disposal M DISPOSITION	fethod					Disp	osed By			1	Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

JENT: TULL Harrford

rchase Order/Project:

DATE: 5.3.03

F#/ SOW# / Release #: F03.006

boratory SDG #:

03051339

OTE:	ALL ENTRIES MARKED "NO" MUST BE I	XPLAINED IN	THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	S) Yes	D No	D N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	Yes .	D No	DNA	D see Comment #
3.	Airbill # recorded?	Yes	□ No	□ N/A	See Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	D-Yes	□ No	D N/A	☐ see Comment #
5.	Sample containers are intact?	} PYes	□ No	□ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	tycves	D No	□ N/A	D see Comment #
7.	All samples on coc received?	Yes	□ No	D N/A	· 🗀 see Comment #
8.	All sample label information matches coc?	D Yes	DNo	D N/A	see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	□ Yes	□ No	DNA	☐ see Comment #
10.	Shipment meets LyLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	Yes	D No	□ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	D Yes	□ No	(DN/A	🖸 see Comment #
12.	coc signed and dated?	Yes	□ No	□ N/A	see Comment #
13.	coc will be faxed or emailed to client?	☑ Yes.	□ No	□ N/A	see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	r Yes	D No	E N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

ELC 01-038/0.6"

Laboratory Sample Custodian:

Laboratory Project Manager:

D. Smith

Lionville Laboratory Use Only

Est. Final Proj. Sampling Date

Project Contact/Phone #

Date Rec'd _5· 1· いる

Lab

Client TNU Hamford FO3-006

001 BIGW86

(1347-606-001.9999-00

Date Due

Client ID/Description

5AF # F03-006

Batch ac for L379,357,366,372

TAT 3000al.a

6-16-03

6-6-03 m

Matrix

QC

Chosen

(v)

MS MSD

Lionville Laboratory Project Manager Onlitte Value

Custody Transfer Record/Lab Work Reque

0309	3L357
------	-------

Project # ____

OC SPEC

MATRIX

CODES:

S - Soff

SE - Sediment SO - Solid

SL - Sludge Water

ÖΉ Air - Drum Solids Drum EP/TCLP Leachate Wipe Other F - Fish

Special Instructions:

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

T	Refriger	ator #											2		H			
7			Liquid															
1	#/Type (Container	Solid										امع	100	Jaa			
1	1/-lu		Liquid															
	Volume		Solid										120	60	120			
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	Matrix	Date Collected	Time Collected										#CR6	INJAZ	7066R			
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		5. ODR	0 , OGA	<u> </u>) Recei Conditio			A) Unbro	-	
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Relinquished by	Received by	Date	Time
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Discrep Samole COC Record? Y or (N) NOTES:

Holding Times ∕r or N

Cooler Temp. 2.3 °C

FH-Central Plate	au Project	CF	HAIN OF CUST	ODY/S	AMPLE	CANALY	/SIS	REQUEST		F03	3-006-69	Page 1 c	f 1
Collector Johansen/Pope/Pfister	<u> </u>	Compa	ny Contact Hulstrom	Telephor 373-39	ne No.			Project Coordin TRENT, SJ	ator P	rice Code	8N	Data Turr	1
Project Designation 200-PW-2/200-PW-4 OU - I	Borehole Soil Sampling		ing Location -A-37 (C4106); (147.5'-1	50")				SAF No. F03-006	A	ir Quality		45 D	ays
Ice Chest No.	-01.063	I HNI	Logbook No. F-N-3361		COA 117504ES	510		Method of Ships Federal Expres		_ _			
Shipped To RE EBERLINE SERVICES (FO	TRA 184 MINERY THAN 4/72	Offsite	Property No.	7038	222			Bill of Lading//	ir Bill No	0. SE	F OSF	~	
Possible sample haz	ARDS/REMARKS' ' └──		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None					
Tie To I Special Handling and/or		:	Type of Container	aG	aG	зG	aG	*/					
	-00/4°C		No. of Container(s)	1	1	1	1	1		<u> </u>			
			Volume	120mL	60mL	120mL	60m	L 60mL					
	SAMPLE ANAL		Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See Hem Speci Instruct	ial /			Tieto:			
Sample No.	Matrix *	Sample Date	Sample Time						MAL AND AND AND AND AND AND AND AND AND AND	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Michigan		Later State of the Later
B16W86	SOIL	5/5/3	0900	1	+	<u> </u>	 			 	BILLIO	- B160	208
						<u> </u>							
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CHAIN OF POSSESS	ION	Sign/Pri	nt Names		SPI	CIAL INST	RUCTIO	ONS AS	2 4/	12/03	** 71 - (-1	:-	Matrix *
	Date/Time 5.65/03 1315 Date/Time Date/Time 1000	Received By/Sto	A 5-5-03 pred In D b on Pred D	ate/Time 131 pate/Time 5.6.03	7 rep	art both kerosen	e and die	sel range compounds m-89,90 - Total Sr,	from WTPI Isolopic The	H-D analysis. orlun (Thorlun			S=Soli SE=Sodiment SO=Solid SI=Sludge W = Water O=Oll A=Air
Relinquished By/Removed From	14 5.6.03	Fede	×			Personnel							DS=Drum Solids DL=Drum Liquids T=Tissue
Refinguished By/Removed From	5.7.03 /10:10		ăn 5.7.0≥	bate/Time	D.	Ref#_/&	Sample on _	s from the 3728					VI=Wipe L=Liquid V=Vegetation X=Other
Retinquished By/Removed From	Date/Time	Received By/Sto	Ben Iv	ete/Time) A-G-ME
Relinquished By/Removed From	Date/Time	Received By/Sto	ored in)ate/Time									<u> </u>
LABORATORY Received SECTION	Ву		·	<u>.</u>	Title							Date/Time	
DISPOSITION Disposal	Method					Disp	osed By					Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

IENT: TNU Hanford

chase Order/Project:

DATE: 5.7.03

F#7)SOW#/Release #: FO 3-00L

poratory SDG #:

	03056357				
TE:	ALL ENTRIES MARKED "NO" MUST BE I	EXPLAINED IN	THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	OCY es	. DNo .	D N/A	C) see Comment #
2.	Outside of coolers or shipping containers are free from damage?	Yes .	□ No	□ N/A	☐ see Comment #
3.	Airbill # recorded?	Yes :	D No	D N/A	See Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	Í₹Yes	□ No	ti n/a	□ see Comment #
5.	Sample containers are intact?	Yes	□ No	□ N/A	□ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	D Yes	□ No	□ N/A	☐ see Comment #
7.	All samples on coc received?	D'Ace	□ No	□ N/A	· D see Comment #
8.	All sample label information matches coc?	U Yes	D No	□ N/A·	See Comment
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	TOYes	□ No	D N/A	See Comment &
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	'EXYes	D No	D N/A	D see Comment #
11.	Where applicable, bar code labels are affixed to coc?	□ Yes	D No	DNA	D see Comment
12,	coc signed and dated?	Yes	□ No	D N/A	D see Comment
13.	coc will be faxed or emailed to client?	E Yes	□ No	D N/A	D see Comment
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	□ N ₀	M N/A	See Comment

Cooler # / temp (°C) and Comments:

Elc-01-063 /2.3"

Laboratory Sample Custodian:

Laboratory Project Manager:

White

Custody Transfer Record/Lab Work Request Page 1 of 1

Lionville	Laboratory	Use	Only

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Client	Ju.	Hamford	FO	3-00L	<u> </u>			Refriger	ator#											2-		7			
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Project Conta	ct/Pho	ne #		<u></u>			_1	Volume	•	Liquid											<u> </u>		 		
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L - EP/TCLP Leachate	 	 							 		1		1												
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Special Instruc	tions:	SAF	# F03	-006			5-14	-0)	1. <u>Par 1</u>	Chil	Du	16	ષ્ટ :	6-0	- 03			-					ry Use C amper Res		
1			-						2 AJJ:								He	(1)	Shippe	ed	_ or	1	l) Preser	nt on O	uter
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} (2%)	W 1	QC AV -	,,,-,,	-					3. N ; P		,							~	307	74.2 5	<u>الدو</u>	8 I	2) Unbrok Package		
t									4 INHIA	HIN I PH OLZEH OLZEK, OGCSC. OA						<i>D</i> 2)	Amble	entor Ø	Alleo)	\$	3) Preser	nt on S	ample		
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30									6						4)	Samp	les		•	4) Unbrol Sample (A) ou	N			
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by		by	Date	Time		Ъy		 _	by	by ORGINAL Samples Labels and 5) Received						Spon Ganga			sect or N						
Den Sx		Mount	5803	10:00	L	0	01/5	931	Z	REW	ZIT.	EN]	NO.	C Reco NES:	ro? Y	or (N	, Ho	olding.	Times	or N		Cooler Temp. <u></u> :	<u>ه.دے</u>	۰۰
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FH-Central Platea	u Project	CI	HAIN OF CUST	ODY/S	AMPLI	EANAL	YSIS	REQUEST	F03-	-006-70 Page 1	of 1
Collector Johansen/Pope/Pfister		Compa	iny Contact Hulstrom	Telepho 373-3	ne No.			Project Coordinato TRENT, SJ	Price Code	014	
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling		ing Location -A-37 (C4106); (197.5'-2	:00')				SAF No. F03-006	Air Quality	□ 45	is to S-Solt SE-Scotment SO-Solid St-Sindge W - Water
Ice Chest No.	99.022	HNI	Logbook No. F-N-3361		COA 117504E	\$10		Method of Shipmen Federal Express	t		
Shipped To EBERLINE SERVICES (For	REILA merly TMA) Agr 4/2:	Offsite	e Property No.	A036	22	>		Bill of Lading/Air	Bill No. SE	E BRC	
POSSIBLE SAMPLE HAZA	RDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Nor	ne None			
	BILWDO		Type of Container	aG	aG	aG	aC	39			
Special Handling and/or S	0014°C		No. of Container(s)	1	1	1 100 1	1				ļ
			Volume	120mL	60mL	120mL	60n				<u> </u>
	SAMPLE ANALYSI		Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Spec Instruc	ini /	Tieto:			
Sample No.	Matrix *	Sample Date	Sample Time								
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Relinquished By/Removed From	·	COCHOL DY/SIC			Title	,				Date/Time	<u> </u>
LABORATORY Received E SECTION											·
FINAL SAMPLE Disposal N DISPOSITION	Acthod					Disc	posed By			Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Handord

irchase Order/Project:

DATE: 5803

AF# SOW# / Release #: FO3 - OOL

aboratory SDG #:

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping DNo DNA ☐ see Comment # container intact, signed and dated? Outside of coolers or shipping containers are D No D N/A D see Comment # free from damage? Airbill # recorded? D No □ N/A ☐ see Comment # All expected paperwork received (coc and other client specific: historical data. ロッ DNA ☐ see Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? □ No D N/A Disec Comment # Custody seals on sample containers intact, DNo. D N/A D see Comment # signed and dated? All samples on coc received? D No D N/A D see Comment # see Comment # D No D N/A All sample label information matches coc? Laboratory QC samples designated on coc? Q/Yes □ No D N/A ☐ see Comment # (QC stickers placed on bonles?) 10. Shipment meets LvLl Sample Acceptance D No D N/A D see Comment # Policy? (identify all bottles not within policy. See reverse side for policy) 11. Where applicable, bar code labels are ☐ Yes □ No DAVA D see Comment # affixed to coc? DY es □ No DWA 12. coc signed and dated? See Comment # Yes. 13. coc will be faxed or emailed to client? D No D N/A See Comment # 14. Project Manager/Client contacted **MYA** ☐ Yes ロど。 D see Comment # concerning discrepancies? (name/date)

Cooler # / temp (°C) and Comments:

ERC 99-022 /2.0:0

Laboratory Sample Custodian:

Laboratory Project Manager:

D (Amith)

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

EIELD DEDCONNEL - COMPLETE ONLY SHADED AREAS



0303 C :					FIELD FE	*UOA	14142	•••	41011 INC	IL ONE	SIMD	בט א	11 <u></u>	•							A	B	C	TNVILLETAN	OR TOR	Y INC.
Client TNU) - H	LANFOI	<u>~D</u>	F03	-006				Refriger	ator#											2.		-			
Est. Final Proj	. Sam:	oling Date .							#/Type /	Container	Lìquid															
Project #		11343	- 606	. 001-	9999-0	0		[#11ype:		Solid					[[AG	146	AG			
Project Contac		1.7							Volume		Liquid														!	
Lionville Labo	oratory	Project Me	anager _		02	-					Solid	<u> </u>								<u> </u>	120	60	120	 _		<u> </u>
OC ZPEC		Del5	70	TAT	30	day	<u> </u>	[Preserv	atives	<u> </u>			لـــــا						<u> </u>	<u> </u>				į į	
						6-03			ANALY	SES			ORG		_			}		RG	thur	مرمر	01/3			
Date Rec'd	5-6	9-03	Da	te Due _	6-8	-07	<u>,</u>	\	REQUE		_	۸Ó	BNA	Pest/ PCB	Herb				Metai	중	Jet	ಸಿಬ	GALLAS			i
MATRIX		1					Mat	-					<u> </u>		Į.		Lionv	ile La					1	 	<u>-i</u>	
CODES:	Lab	1					. 0	:		Date	Time												د			
S - Soil SE Sediment	ID		Client	ID/Descrip	ption	İ	Cho:		Matrix	Collected										1	1566	TADAZ	TOGGR			
SO Solid SL Sludge		{					MS	MSD			ĺ	ĺ				,					12	7	A		-	1
	001	B164	URB			-			50	5-703	1050								٠.		1	1	1			
A - Ak	1	13.70	<u> </u>				5	74,																		
DS - Drum Solids			 .							 																
DL - Drum Liquida	 	- 								 	-		-	1	<u> </u>	 				!		1		$\uparrow \neg \uparrow$		
L - EP/TCLP Leachate		 	 		<u> </u>				 	 	 	 -	 		ļ			† –		 	1	 	1			
WI - Wipe X - Other			·····	 		<u> </u>			<u> </u>			f		 	 	 	-			1-		1	 	1	†	1
F - Fish		 	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		· <u></u>	·				 			+			├	<u> </u>	 		 	 	+-	-	+		+
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Special Instruc	tions:	SAF	44	F03-	006			DATE	REVISIO	NS:	cl. t	ð.,	D.		6-16	-03			-		Lionv	iile Lal		y Use O		
1		•															A 1/	Al·	7 S		were:			amper Res) Present		
12	.4./	QC For	1 234	τς 2. 3	66.372					2. Add	Hg , 115	. (2)	Da B	<u>e. 5</u>	<u>, 4</u>	<u>UP. </u>	<u> </u>	-/"	" H	and De	elivered 50			ackage		
٦	mck	G C 747	F37 (,	JJ 11 -					3. Sb, Se/ Ic: C1, F1, NO, NO, POX SO,							- ^	# الidaiu ش 6	100	=) Unbrok Package (
						4 TAHIN, IPH OLIGH, OBISX, OGCSC, OPCB							_ 2		ent orc) Presen	nton S	ample						
										5. ODR	0 64	20							3) Received in Good							
သ												-							Condition (Y) or N 4) Unbroken of 4) Sample (7) or Sample (7)							
		Doorbii	<u> </u>		 1	- B-			<u> </u>	6	= =				_=						Press	oved	C	COC Rec	ord Pr	resent
Helinquisne by										ived W		ι	Jpon San		lec't or N											
GENCY	_1/	11.	11	5-9-07	0920					×	VELVE	177 177	1		CO	C Reco	rd? Y	or (N		o) nece lolding	Times			Cooler	س حجر ا	••
1 -06*	FEOEX COLL 5-9-07 0930 COC Record? Y or (N) NOTES:								Or N Temp.																	

FH-Central Plateau Project	CI	HAIN OF CUST	ODY/S	AMPLE	ANALY	SIS	REQUES	T		F03-	006-71	Page 1 o	ıf <u>1</u>
Collector Johansen/Pope/Pfister	Comp	any Contact Hulstrom	Telephon 373-39	ie No.		}	Project Coor TRENT, SJ	dinator	Price Co	nde {	RN	Data Turi	
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampli	Sampl	ing Location -A-37 (C4106); (237.5'-2	40')				SAF No. F03-006		Air Qu	ality		45 1)ays
Ice Chest No. FRC-01-040	Field	Loghnok No. F-N-3361		COA 117504ES1	0		Method of S Federal Ex		- 1 -				
Shipped To RECLA ERERLINE SERVICES (Formerly IMA) POSSIBLE SAMPLE HAZARDS/REMARKS	Offsit	e Property No.					Bill of Ladi	ng/Air Bi	ill No.	ree	0590	ン	
POSSIBLE SAMPLE HAZARDS/REMARKS	- 11 heges.1	Preservation	Cool 4C	Cool 4C	Coal 4C	Non	ne None						,
Special Handling and/or Storage		Type of Container	aG	аG	аG	aG	39						
Special transiting and/or Storage		No. of Container(s)	1	1	1	1	_//_]_					
		Volume	120mL	60mL	120mL	60π	<u> </u>					<u> </u>	
SAMPLE A	NALYSIS		Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Spec Instruc	ial /	Ht			i L L		
						M	4)			Til	to:	0 5 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	
Sample No. Matrix *	Sample Date					17 17				311	WDO		
B16W88 SOIL	5-7-03	1050	\ \ <u>\</u>		1	 				DIC			<u> </u>
													
			 -		 						 	 	
CHAIN OF POSSESSION	Sign/Pri	int Names	1	SPE	CIAL INST	RUCTI	ONS	981	- 4/2	2/03	**=**		Matrix *
Relinquished By/Removed From Relinquished By/Removed From 3.004 (5.00) Relinquished By/Removed From 3.12 B	Received By/S Received By/S Received By/S Received By/S Received By/S	tored in School of School	Date/Time S/J3 L Date/Time Date/Time 5-9-03 Date/Time	4 0 129; 0 330 Pe rel Re	Technetium-93 Nickel-63; No rsonnel not inquish sam	, Saronna eptunium availab	im-89,90 — Tota -237	Sr, Isotop	W (1)	Thorium-	232}; Carbon-	-	S=Soil SE=Sediment SO=Soild SI=Sindge W = Water O=Oil A=Air DS=Drum Sc DI=Drum Sc DI=Drum Li T-/Tsos W)=Wipe L=Liquid V=Vegetatio X=Other
LABORATORY Received By SECTION			•	Title	<u> </u>								
FINAL SAMPLE Disposal Method DISPOSITION					Dis	posed By	,			-		Date/Time	

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LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

ENT: THU HANGORD

:hase Order/Project:

DATE: 5-9-03

*#/ SOW# / Release #: [=03-006

ioratory SDG#: 03052372

TE:	ALL ENTRIES MARKED "NO" MUST BE		THE COMM	ENT SECTION	·
1.	Custody seals on coolers or shipping container intact, signed and dated?	Q [™] Yes	, DNo .	□ N/A	isee Comment #
2.	Outside of coolers or shipping containers are free from damage?	ØŶes ·	□ N ₀	D NVA	☐ see Comment #
3.	Airbill # recorded?	☑Yes :	□ No	O N/A	see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	ta Yes	□ No	□ N/A	🛘 see Comment #
5.	Sample containers are intact?	Z Yes	□ No	□ N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	Ø Ŷes	□ No	□ N/A	D see Comment #
7.	All samples on coc received?	Ø Yes	□ No	□ N/A	☐ see Comment #
8.	All sample label information matches coc?	Yes	□ No	D N/A	See Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bonles?)	Z Yes	□ No	□ N/A	□ see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	Z Y.es	□ No	□ N/A	□ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	□ Yes	□ No	ENIA	See Comment #
12.	coc signed and dated?	D Yes	□ No	□ N/A	🖸 see Comment #
13.	coc will be faxed or emailed to client?	E Yes	□ No	D N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	□ Yes	. D No	ENIA	☐ see Comment #

Cooler # / temp (°C) and Comments:

FRC 01 -040

Laboratory Sample Custodian:

Laboratory Project Manager:



DATE RECEIVED: 05/03/03 LVL LOT # :0305L339

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W84						
% SOLIDS	001	s	03L%S062	04/30/03	05/06/03	05/07/03
CHLORIDE BY IC	001	S	03LIC032	04/30/03	05/21/03	05/21/03
CHLORIDE BY IC	001 REP	S	03LIC032	04/30/03	05/21/03	05/21/03
CHLORIDE BY IC	001 MS	S	03LIC032	04/30/03	05/21/03	05/21/03
FLUORIDE BY IC	001	S	03LIC032	04/30/03	05/21/03	05/21/03
FLUORIDE BY IC	001 REP	S	03LIC032	04/30/03	05/21/03	05/21/03
FLUORIDE BY IC	001 MS	S	03LIC032	04/30/03	05/21/03	05/21/03
NITRITE BY IC	001	S	03LIC032	04/30/03	05/21/03	05/21/03
NITRITE BY IC	001 REP	S	03LIC032	04/30/03	05/21/03	05/21/03
NITRITE BY IC	001 MS	S	03LIC032	04/30/03	05/21/03	05/21/03
NITRATE BY IC	001	S	03LIC032	04/30/03	05/21/03	05/21/03
NITRATE BY IC	001 REP	S	03LIC032	04/30/03	05/21/03	05/21/03
NITRATE BY IC	001 MS	S	03LIC032	04/30/03	05/21/03	05/21/03
TOTAL CYANIDE	001	S	03LCA45	04/30/03	05/19/03	05/19/03
PHOSPHATE BY IC	001	S	03LIC032	04/30/03	05/21/03	05/21/03
PHOSPHATE BY IC	001 REP	S	03LIC032	04/30/03	05/21/03	05/21/03
PHOSPHATE BY IC	001 MS	S	03LIC032	04/30/03	05/21/03	05/21/03
CHROMIUM VI	001	S	03LVI041	04/30/03	05/07/03	05/07/03
SULFATE BY IC	001	S	03LIC032	04/30/03	05/21/03	05/21/03
SULFATE BY IC	001 REP	S	03LIC032	04/30/03	05/21/03	05/21/03
SULFATE BY IC	001 MS	S	03LIC032	04/30/03	05/21/03	05/21/03
NITRATE NITRITE	001	S	03LN3B26	04/30/03	05/19/03	05/19/03
NITRATE NITRITE	001 REP	S	03LN3B26	04/30/03	05/19/03	05/19/03
NITRATE NITRITE	001 MS	S	03LN3B26	04/30/03	05/19/03	05/19/03
AMMONIA	001	S	03LAMA14	04/30/03	05/24/03	05/26/03
OIL & GREASE BY GRAV	001	S	03LOG020	04/30/03	05/21/03	05/22/03
OIL AND GREASE BY GR	001 REP	S	03LOG020	04/30/03	05/21/03	05/22/03
OIL AND GREASE BY GR	001 MS	S	03LOG020	04/30/03	05/21/03	05/22/03
PH	001	S	03LPH035	04/30/03	05/20/03	05/20/03
PH	001 REP	S	03LPH035	04/30/03	05/20/03	05/20/03
B16W85						
% SOLIDS	002	s	03L%S062	04/30/03	05/06/03	05/07/03
% SOLIDS	002 REP	Š	03L%S062	04/30/03	05/06/03	05/07/03
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DATE RECEIVED: 05/03/03 LVL LOT # :0305L339

CLIENT ID /ANALYSIS	TAT #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
CHLORIDE BY IC	002	s	03LIC032	04/30/03	05/21/03	05/21/03
FLUORIDE BY IC	002 -	S	03LIC032	04/30/03	05/21/03	05/21/03
NITRITE BY IC	002	S	03LIC032	04/30/03	05/21/03	05/21/03
NITRATE BY IC	002	S	03LIC032	04/30/03	05/21/03	05/21/03
TOTAL CYANIDE	002	S	03LCA45	04/30/03	05/19/03	05/19/03
PHOSPHATE BY IC	002	S	03LIC032	04/30/03	05/21/03	05/21/03
CHROMIUM VI	002	s	03LVI041	04/30/03	05/07/03	05/07/03
CHROMIUM VI	002 REP	S	03LVI041	04/30/03	05/07/03	05/07/03
CHROMIUM VI	002 MS	s	03LVI041	04/30/03	05/07/03	05/07/03
CHROMIUM VI	002 MSD	S	03LVI041	04/30/03	05/07/03	05/07/03
SULFATE BY IC	002	S	03LIC032	04/30/03	05/21/03	05/21/03
NITRATE NITRITE	002	S	03LN3B26	04/30/03	05/19/03	05/19/03
AMMONIA	002	s	03LAMA14	04/30/03	05/24/03	05/26/03
AMMONIA	002 REP	S	03LAMA14	04/30/03	05/24/03	05/26/03
AMMONIA	002 MS	s	03LAMA14	04/30/03	05/24/03	05/26/03
OIL & GREASE BY GRAV	002	S	03LOG020	04/30/03	05/21/03	05/22/03
PH	002	S	03LPH035	04/30/03	05/20/03	05/20/03
						•
AB QC:						

CHLORIDE BY IC	MB1	S	03LIC032	N/A	05/21/03	05/21/03
CHLORIDE BY IC	MB1 BS	S	03LIC032	N/A	05/21/03	05/21/03
FLUORIDE BY IC	MB1	S	03LIC032	N/A	05/21/03	05/21/03
FLUORIDE BY IC	MB1 BS	S	03LIC032	N/A	05/21/03	05/21/03
NITRITE BY IC	MB1	S	03LIC032	N/A	05/21/03	05/21/03
NITRITE BY IC	MB1 BS	S	03LIC032	N/A	05/21/03	05/21/03
NITRATE BY IC	MB1	S	03LIC032	N/A	05/21/03	05/21/03
NITRATE BY IC	MB1 BS	S	03LIC032	N/A	05/21/03	05/21/03
TOTAL CYANIDE	LCS L	S	03LCA45	N/A	05/19/03	05/19/03
TOTAL CYANIDE	LCS L	S	03LCA45	N/A	05/19/03	05/19/03
TOTAL CYANIDE	MB1	S	03LCA45	N/A	05/19/03	05/19/03
PHOSPHATE BY IC	MB1	s	03LIC032	N/A	05/21/03	05/21/03
PHOSPHATE BY IC	MB1 BS	s	03LIC032	N/A	05/21/03	05/21/03
CHROMIUM VI	MB1	S	03LVI041	N/A	05/07/03	05/07/03
CHROMIUM VI	MB1 BS	S	03LVI041	N/A	05/07/03	05/07/03
CHROMIUM VI	MB1 BSD	s	03LVI041	N/A	05/07/03	05/07/03
SULFATE BY IC	MB1	S	03LIC032	N/A	05/21/03	05/21/03
SULFATE BY IC	MB1 BS	S	03LIC032	N/A	05/21/03	05/21/03

DATE RECEIVED: 05/03/03 LVL LOT # :0305L339

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
NITRATE NITRITE	MB1	S	03LN3B26	N/A	05/19/03	05/19/03
NITRATE NITRITE	MB1 BS	S	03LN3B26	N/A	05/19/03	05/19/03
AMMONIA	MB1	S	03LAMA14	N/A	05/24/03	05/26/03
AMMONIA	MB1 BS	S	03LAMA14	N/A	05/24/03	05/26/03
AMMONIA	MB1 BSD	S	03LAMA14	N/A	05/24/03	05/26/03
OIL & GREASE BY GRAV	MB1	S	03LOG020	N/A	05/21/03	05/22/03
OIL AND GREASE BY GR	MB1 BS	S	03LOG020	N/A	05/21/03	05/22/03
OIL AND GREASE BY GR	MB1 BSD	S	03LOG020	N/A	05/21/03	05/22/03

DATE RECEIVED: 05/07	/03			1	LVL LOT # :0	305L357
CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W86						
% SOLIDS % SOLIDS CHLORIDE BY IC FLUORIDE BY IC NITRITE BY IC NITRATE BY IC TOTAL CYANIDE PHOSPHATE BY IC CHROMIUM VI SULFATE BY IC NITRATE NITRITE AMMONIA OIL & GREASE BY GRAV PH LAB QC:	001 001 REP 001 001 001 001 001 001 001 001 001 00	8888888888888	03L%S063 03L%S063 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032	05/05/03 05/05/03 05/05/03 05/05/03 05/05/03 05/05/03 05/05/03 05/05/03 05/05/03 05/05/03 05/05/03	05/07/03 05/07/03 05/21/03 05/21/03 05/21/03 05/19/03 05/19/03 05/14/03 05/21/03 05/21/03 05/22/03 05/24/03 05/21/03 05/21/03	05/08/03 05/08/03 05/21/03 05/21/03 05/21/03 05/19/03 05/21/03 05/21/03 05/21/03 05/22/03 05/26/03 05/22/03 05/20/03
CHLORIDE BY IC CHLORIDE BY IC FLUORIDE BY IC FLUORIDE BY IC NITRITE BY IC NITRITE BY IC NITRATE BY IC NITRATE BY IC TOTAL CYANIDE TOTAL CYANIDE TOTAL CYANIDE PHOSPHATE BY IC PHOSPHATE BY IC CHROMIUM VI CHROMIUM VI CHROMIUM VI SULFATE BY IC SULFATE BY IC	MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS LCS L LCS L MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS		03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LC045 03LC045 03LC045 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/19/03 05/19/03 05/19/03 05/19/03 05/21/03 05/14/03 05/14/03 05/14/03 05/14/03 05/14/03	05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/19/03 05/19/03 05/19/03 05/21/03 05/21/03 05/14/03 05/14/03 05/14/03 05/14/03 05/14/03 05/21/03

DATE RECEIVED: 05/07/03

LVL LOT # :0305L357

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
						
NITRATE NITRITE	MB1	S	03LN3A27	N/A	05/22/03	05/22/03
NITRATE NITRITE	MB1 BS	S	03LN3A27	N/A	05/22/03	05/22/03
AMMONIA	MB1	S	03LAMA14	N/A	05/24/03	05/26/03
AMMONIA	MB1 BS	S	03LAMA14	N/A	05/24/03	05/26/03
AMMONIA	MB1 BSD	S	03LAMA14	N/A	05/24/03	05/26/03
OIL & GREASE BY GRAV	MB1	S	03LOG020	N/A	05/21/03	05/22/03
OIL AND GREASE BY GR	MB1 BS	S	03LOG020	N/A	05/21/03	05/22/03
OIL AND GREASE BY GR	MB1 BSD	s	03LOG020	N/A	05/21/03	05/22/03

DATE RECEIVED: 05/08/03 LVL LOT # :0305L						305L366
CLIENT ID /ANALYSIS	LVL #	XTM	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W87						
% SOLIDS % SOLIDS CHLORIDE BY IC FLUORIDE BY IC NITRITE BY IC NITRATE BY IC TOTAL CYANIDE TOTAL CYANIDE TOTAL CYANIDE PHOSPHATE BY IC CHROMIUM VI SULFATE BY IC NITRATE NITRITE AMMONIA OIL & GREASE BY GRAV PH	001 001 REP 001 001 001 001 001 REP 001 MS 001 001 001 001	999999999999999999	03L%S064 03L%S064 03LIC032 03LIC032 03LIC032 03LCA45 03LCA45 03LCA45 03LIC032 03LVI043 03LIC032 03LNIO32 03LNIO32 03LNIO32 03LNIO32 03LNIO32	05/06/03 05/06/03 05/06/03 05/06/03 05/06/03 05/06/03 05/06/03 05/06/03 05/06/03 05/06/03 05/06/03 05/06/03 05/06/03	05/09/03 05/09/03 05/21/03 05/21/03 05/21/03 05/19/03 05/19/03 05/19/03 05/19/03 05/21/03 05/21/03 05/22/03 05/24/03 05/21/03 05/21/03 05/21/03	05/12/03 05/12/03 05/21/03 05/21/03 05/21/03 05/21/03 05/19/03 05/19/03 05/19/03 05/21/03 05/21/03 05/22/03 05/22/03 05/22/03 05/22/03
LAB QC:						
CHLORIDE BY IC CHLORIDE BY IC FLUORIDE BY IC FLUORIDE BY IC NITRITE BY IC NITRITE BY IC NITRATE BY IC NITRATE BY IC TOTAL CYANIDE TOTAL CYANIDE TOTAL CYANIDE PHOSPHATE BY IC PHOSPHATE BY IC CHROMIUM VI CHROMIUM VI	MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS LCS L LCS L MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LCA45 03LCA45 03LCA45 03LCO32 03LIC032 03LIC032 03LIC032	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/19/03 05/19/03 05/19/03 05/19/03 05/14/03 05/14/03	05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/19/03 05/19/03 05/19/03 05/19/03 05/21/03 05/21/03 05/14/03 05/14/03

DATE RECEIVED: 05/08/03 LVL LOT # :0305L366

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
		_ —				
SULFATE BY IC	MB1	s	03LIC032	N/A	05/21/03	05/21/03
SULFATE BY IC	MB1 BS	S	03LIC032	N/A	05/21/03	05/21/03
NITRATE NITRITE	MB1	S	03LN3A27	N/A	05/22/03	05/22/03
NITRATE NITRITE	MB1 BS	S	03LN3A27	N/A	05/22/03	05/22/03
AMMONIA	MB1	S	03LAMA14	N/A	05/24/03	05/26/03
AINOMMA	MB1 BS	S	03LAMA14	N/A	05/24/03	05/26/03
AMMONIA	MB1 BSD	s	03LAMA14	N/A	05/24/03	05/26/03
OIL & GREASE BY GRAV	MB1	S	03LOG020	N/A	05/21/03	05/22/03
OIL AND GREASE BY GR	MB1 BS	S	03LOG020	N/A	05/21/03	05/22/03
OIL AND GREASE BY GR	MB1 BSD	S	03LOG020	N/A	05/21/03	05/22/03

DATE RECEIVED: 05/09	/03			1	LVL LOT # :0	305L372
CLIENT ID /ANALYSIS	LVL #	мтх — —	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16W88						
<pre>% SOLIDS % SOLIDS CHLORIDE BY IC FLUORIDE BY IC NITRITE BY IC NITRATE BY IC TOTAL CYANIDE PHOSPHATE BY IC CHROMIUM VI SULFATE BY IC NITRATE NITRITE AMMONIA OIL & GREASE BY GRAV PH</pre>	001 001 REP 001 001 001 001 001 001 001 001 001	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	03L%S065 03L%S065 03LIC032 03LIC032 03LIC032 03LIC032 03LCA45 03LIC032 03LVI043 03LIC032 03LN3A27 03LAMA14 03LOG020 03LPH035	05/07/03 05/07/03 05/07/03 05/07/03 05/07/03 05/07/03 05/07/03 05/07/03 05/07/03 05/07/03 05/07/03 05/07/03	05/13/03 05/13/03 05/21/03 05/21/03 05/21/03 05/21/03 05/19/03 05/21/03 05/14/03 05/21/03 05/22/03 05/24/03 05/21/03 05/21/03	05/14/03 05/14/03 05/21/03 05/21/03 05/21/03 05/21/03 05/19/03 05/21/03 05/21/03 05/22/03 05/22/03 05/22/03 05/22/03
LAB QC:						
CHLORIDE BY IC CHLORIDE BY IC FLUORIDE BY IC FLUORIDE BY IC NITRITE BY IC NITRITE BY IC NITRATE BY IC NITRATE BY IC TOTAL CYANIDE TOTAL CYANIDE TOTAL CYANIDE PHOSPHATE BY IC PHOSPHATE BY IC CHROMIUM VI CHROMIUM VI CHROMIUM VI SULFATE BY IC SULFATE BY IC	MB1 BS MB1 BS MB1 BS LCS L LCS L MB1 MB1 BS MB1 MB1 BS MB1 MB1 BS		03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LIC032 03LCA45 03LCA45 03LCA45 03LCA45 03LIC032 03LIC032 03LIC032 03LIC032 03LVI043 03LVI043 03LVI043 03LVI043	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/19/03 05/19/03 05/19/03 05/19/03 05/19/03 05/19/03 05/19/03 05/14/03 05/14/03 05/14/03 05/14/03 05/14/03 05/21/03	05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/21/03 05/19/03 05/19/03 05/19/03 05/21/03 05/21/03 05/14/03 05/14/03 05/14/03 05/21/03

DATE RECEIVED: 05/09/03 LVL LOT # :0305L372

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE NITRITE	MB1	S	03LN3A27	N/A	05/22/03	05/22/03
NITRATE NITRITE	MB1 BS	S	03LN3A27	N/A	05/22/03	05/22/03
AMMONIA	MB1	S	03LAMA14	N/A	05/24/03	05/26/03
AMMONIA	MB1 BS	S	03LAMA14	N/A	05/24/03	05/26/03
AMMONIA	MB1 BSD	S	03LAMA14	N/A	05/24/03	05/26/03
OIL & GREASE BY GRAV	MB1	S	03LOG020	N/A	05/21/03	05/22/03
OIL AND GREASE BY GR	MB1 BS	S	03LOG020	N/A	05/21/03	05/22/03
OIL AND GREASE BY GR	MB1 BSD	S	03LOG020	N/A	05/21/03	05/22/03



Analytical Report

Client: TNU-HANFORD F03-006 H2195

LVL#: 0305L339, 0305L357, 0305L366 and 0305L372

W.O.#: 11343-606-001-9999-00 Date Received: 05-03,07,08,09-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 solid sample and 4 soil samples.

- 2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
- 3. The sample holding times as required by the method and/or contract were met with the exception of Total Cyanide samples B16W84 and B16W85.
- 4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 5. The method blanks were within the method criteria.
- 6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Ammonia and Oil and Grease were within the 20% Relative Percent Difference (RPD) control limit.
- 7. The matrix spike recoveries for Chloride, Fluoride, Nitrate, Nitrate, Phosphate, Sulfate, Nitrate Nitrite and Oil and Grease sample B16W84, Chromium VI and Ammonia sample B16W85 and Total Cyanide sample B16W87 were within the 75-125% control limits.
- 8. The replicate analyses for Percent Solids, Chloride, Fluoride, Nitrite, Nitrate, Phosphate, Sulfate, Nitrate Nitrite, Oil and Grease, pH, Chromium VI, Ammonia and Total Cyanide were within the 20% Relative Percent Difference (RPD) control limit.

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 50 pages.

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- 9. Results for solid samples are reported on a dry weight basis.
- 10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

njp\i05-339,357,366,372

0<u>6-06-03</u>



Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	<u>SW846</u>	OTHER
% Ash	D2216-80		
% Moisture	D2216-80		ILMO4.0 (e)
% Solids	D2216-80		ILMO4.0 (e)
% Volatile Solids	D2216-80		
ASTM Extraction in Water	D3987-81/85		
BTU	D240-87		
CEC		9081	c
Chromium VI		√ 3060A/7196A	_
Corrosivity by coupon by pH		1110(mod)9045C	
Cyanide, Total		√ 9010B /9014	_ ILMO4.0 (e)
Cyanide, Reactive		Section 7.3/9014	
Halides, Extractable Organic		9020B	EPA 600/4/84-008
Halides, Total		9020B	EPA 600/4/84-008
EP Toxicity		1310A	
Flash Point		1010	
Ignitability		1010	
Oil & Grease		✓ 9071A	1413.1 (mod.)
Carbon, Total Organic	•	9060	Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	D240-87(mod) 5050	
Petroleum Hydrocarbons, Total Re	coverable	9071	EPA 418.1
pH, Soil		<u>√</u> 9045C	1
Sulfide, Reactive	•	Section 7.3/9030B	
Sulfide		9030B(mod)	
Specific Gravity	D1429-76C/	D5057-90	
Sulfur, Total		9056	
Synthetic Preparation Leach		1312	
Paint Filter		9095A	
Other: Chloride Theoride Y.	itrite Method: &	=PA 300.0 (med.)	
Other: Witrate Russhade &	ulfateMethod		
Aitrate Actite	0 9	PA 353.2 (mod.) PA 350.3	
Ammoria	6	TPA 350.3	
V			4.0

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

- ASTM Standard Methods.
- USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
- 3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
- a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
- b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
- c. <u>Method of Soil Analysis</u>, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
- d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
- e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
- f. Code of Federal Regulations.

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INORGANICS DATA SUMMARY REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0305L339

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
======	*******		*****	=====	========	
-001	B16W84	% Solids	91.6	*	0.01	1.0
		Chloride by IC	1.4 u	MG/KG	1.4	1.0
		Fluoride by IC	1.4 u	MG/KG	1.4	1.0
		Nitrite by IC	1.36 u	MG/KG	1.36	1.0
		Nitrate by IC	113	MG/KG	13,6	10.0
		Cyanide, Total	0.48 u	MG/KG	0.48	1.0
		Phosphate by IC	1.4 u	MG/KG	1.4	1.0
		Chromium VI	0.44 u	MG/KG	0.44	1.0
		Sulfate by IC	2.3	MG/KG	1.4	1.0
		Nitrate Nitrite	24.1	MG/KG	1.1	5.0
		Ammonia, as N	4.8 u	MG/KG	4.8	1.0
		Oil & Grease Gravimetri	727 u	MG/KG	727	1.0
		рн	8.4	SOIL PH	0.01	1.0
-002	B16W85	% Solids	93.1	*	0.01	1.0
		Chloride by IC	1.3 u	MG/KG	1.3	1.0
		Fluoride by IC	1.3 u	MG/KG	1.3	1.0
		Nitrite by IC	1.34 u	MG/KG	1.34	1.0
		Nitrate by IC	23.3	MG/KG	1.34	1.0
		Cyanide, Total	0.40 u	MG/KG	0.40	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
		Sulfate by IC	1.3 u	MG/KG	1.3	1.0
		Nitrate Nitrite	5.6	MG/KG	0.22	1.0
		Ammonia, as N	5.3 u	MG/KG	5.3	1.0
		Oil & Grease Gravimetri	716 u	MG/KG	716	1.0
		рН	8.6	SOIL PH	0.01	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L339

,,0.0.						
,					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	result	UNITS	LIMIT	FACTOR
****	*******		*****			=======
BLANK10	03LTC032-MB1	Chloride by IC	1.2 u	MG/KG	1.2	1.0
		Fluoride by IC	1.2 u	MG/KG	1.2	1.0
		Nitrite by IC	1.25 u	MG/KG	1.25	1.0
		Nitrate by IC	1.25 u	MG/KG	1.25	1.0
		Phosphate by IC	1.2 u	MG/KG	1.2	1.0
		Sulfate by IC	1.2 u	MG/KG	1.2	1.0
BLANK1	03 LCA45-MB1	Cyanide, Total	0.50 u	MG/KG	0.50	1.0
BLANK10	03LVI041-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0
BLANK10	03 LN3B26-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	03 LAMA14-MB1	Ammonia, as N	5.0 u	MG/KG	5.0	1.0
BLANK10	03LOG020-MB1	Oil & Grease Gravimetri	667 u	MG/KG	667	1.0

INORGANICS ACCURACY REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0305L339

•			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTB	SAMPLE	RESULT	AMOUNT	*RBCOV	FACTOR (SPK)
*=====	*==*====	*********		#===	****		
-001	B16W84	Chloride by IC	26.9	0.40	27.3	97.0	1.0
		Fluoride by IC	27.5	0.66	27.3	98.3	1.0
		Nitrite by IC	26.6	1.36u	27.3	97.7	1.0
		Nitrate by IC	399	113	273	105.0	10.0
		Phosphate by IC	25.1	1.4 u	27.3	91.9	1.0
		Sulfate by IC	30.8	2.3	27.3	104.4	1.0
		Nitrate Nitrite	30.3	24.1	5.5	112.6*	5.0
		Oil & Grease Gravimetr	6820	727 u	7900	86.3	1.0
-002	B16WB5	Soluble Chromium VI	3.7	0.43u	4.3	80.1	1.0
		Insoluble Chromium VI	1190	0,43u	1200	99.0	100
		Ammonia, as N	192	5.3 u	199	96,5	1.0
BLANK10	03LIC032-MB1	Chloride by IC	24.2	1.2 u	25.0	96.7	1.0
		Fluoride by IC	24.7	1.2 u	25.0	98.9	1.0
		Nitrite by IC	24.5	1.25u	25.0	98.1	1.0
		Nitrate by IC	24.3	1.25u	25.0	97.2	1.0
		Phosphate by IC	23.4	1.2 u	25.0	93,7	1.0
		Sulfate by IC	24.5	1.2 u	25.0	97.8	1.0
BLANK10	03LVI041-MB1	Soluble Chromium VI	3.9	0.40u	4.0	96.6	1.0
		Insoluble Chromium VI	1220	0.40u	1250	97.8	100
BLANK10	03LN3B26-MB1	Nitrate Nitrite	5.1	0.20u	5.0	102.4	1.0
BLANK10	03LAMA14-MB1	Ammonia, as N	196	5.0 u	200	98.0	1.0
		Ammonia, as N MSD	192	5.0 u	200	96.0	1.0
BLANK10	03 LOG020-MB1	Oil & Grease Gravimetr	6470	667 u	7240	89.3	1.0
		Oil & Grease - Grav M	7120	667 u	7240	98.3	1.0

INORGANICS DUPLICATE SPIKE REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L339

,			SPIKB#1	SPIKB#2	2
SAMPLE	SITE ID	ANALYTE	*RECOV	*RECOV	*DIFF
	************		#=====	======	
BLANK10	03LAMA14-MB1	Ammonia, as N	98.0	96.0	2.1
BLANK10	03L0G020-MB1	Oil & Grease - Grav	89.3	98.3	9.6

INORGANICS PRECISION REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L339

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	FACTOR (REP)
		*************		*******	=======	*********
-001REP	B16W84	Chloride by IC	1.4 u	1.4 u	NC	1.0
		Fluoride by IC	1.4 u	1.4 u	NC	1.0
		Nitrite by IC	1.36u	1.36u	NC	1.0
		Nitrate by IC	113	104	7.9	10.0
		Phosphate by IC	1.4 u	1.4 u	NC	1.0
		Sulfate by IC	2.3	2.1	11.1	1.0
		Nitrate Nitrite	24.1	24.0	0.44	5.0
		Oil & Grease Gravimetri	727 u	727 u	NC	1.0
		рH	8.4	8.4	0.5	1.0
-002REP	B16W85	% Solids	93.1	92.6	0.51	1.0
		Chromium VI	0.43u	0.43u	NC	1.0
		Ammonia, as N	5.3 u	5.1 u	NC	1.0

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L339

			SLIKED	SPIKED		
SAMPLE	SITE ID	ANALYTE	SAMPLE	AMOUNT	UNITS	*RECOV
LC9S1	03LCA45-LCS1	Cyanide, Total LCS	1.87	2.0	MG/KG	93.6
LCSS2	03LCA45-LCS2	Cyanide, Total LCS	9.66	10.0	MG/KG	96.6

INORGANICS DATA SUMMARY REPORT 05/27/03

CLIENT: TNUHANPORD F03-006 H2195

MODK	OPDER.	11343-606-001-9999-00
WORK.	ORDER:	11343-606-001-2222-00

HORIC ORDE	12010 000 001 0000				REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	result	UNITS	LIMIT	FACTOR
288888	******		=====			*=====
-001	B16W86	% Solids	96.8	*	0.01	1.0
		Chloride by IC	1.3 u	MG/KG	1.3	1.0
		Fluoride by IC	1.3 u	MG/KG	1.3	1.0
		Nitrite by IC	1.29 u	MG/KG	1.29	1.0
		Nitrate by IC	6.96	MG/KG	1.29	1.0
		Cyanide, Total	0.33 u	MG/KG	0.33	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
		Sulfate by IC	3.4	MG/KG	1.3	1.0
		Nitrate Nitrite	1.9	MG/KG	0.19	1.0
		Ammonia, as N	4.8 u	MG/KG	4.8	1.0
		Oil & Grease Gravimetri	689 u	MG/KG	689	1.0
		рн	8.9	SOIL PH	0.01	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L357

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
*****	**************			****		
BLANK10	03LIC032-MB1	Chloride by IC	1.2 u	MG/KG	1.2	1.0
		Fluoride by IC	1.2 u	MG/KG	1.2	1.0
		Nitrite by IC	1.25 u	MG/KG	1.25	1.0
		Nitrate by IC	1.25 u	MG/KG	1.25	1.0
		Phosphate by IC	1.2 u	MG/KG	1.2	1.0
		Sulfate by IC	1.2 u	MG/KG	1.2	1.0
BLANK1	03LC045-MB1	Cyanide, Total	0.50 u	mg/kg	0.50	1.0
BLANK10	03LVI043-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0
BLANK10	03LN3A27-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	03LAMA14-MB1	Ammonia, as N	5.0 u	mg/Kg	5.0	1.0
BLANK10	03LOG020-MB1	Oil & Grease Gravimetri	667 u	MG/KG	667	1.0

INORGANICS ACCURACY REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00

			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	*RECOV	FACTOR (SPK)
	******	************			=====	======	*********
BLANK10	03LIC032-MB1	Chloride by IC	24.2	1.2 u	25.0	96.7	1.0
		Fluoride by IC	24.7	1.2 u	25.0	98.9	1.0
		Nitrite by IC	24.5	1.25u	25.0	98.1	1.0
		Nitrate by IC	24.3	1.25u	25.0	97.2	1.0
		Phosphate by IC	23.4	1.2 u	25.0	93.7	1.0
		Sulfate by IC	24.5	1.2 u	25.0	97.8	1.0
BLANK10	03LVI043-MB1	Soluble Chromium VI	4.0	0.40u	4.0	98.9	1.0
		Insoluble Chromium VI	970	0.40u	1050	92.3	100
BLANK10	03LN3A27-MB1	Nitrate Nitrite	5.2	0.20u	5.0	104.0	1.0
BLANK10	03LAMA14-MB1	Ammonia, as N	196	5.0 u	200	98.0	1.0
		Ammonia, as N MSD	192	5.0 u	200	96.0	1.0
BLANK10	03LOG020-MB1	Oil & Grease Gravimetr	6470	667 u	7240	89.3	1.0
		Oil & Grease - Grav N	7120	667 u	7240	98.3	1.0

INORGANICS DUPLICATE SPIKE REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L357

			SPIKE#1	L SPIKB#:	2
SAMPLE	SITE ID	ANALYTE	*RECOV	*RBCOV	*DIFF
****	*****				****
BLANK10	03LAMA14-MB1	Ammonia, as N	98.0	96.0	2.1
BLANK10	03LOG020-MB1	Oil & Grease - Grav	89.3	98.3	9.6

INORGANICS PRECISION REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L357

				INITIAL			
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	PACTOR (REP)	
==*==	***				*****		
-001REP	B16W86	% Solids	96.8	97.0	0.25	1.0	

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L357

			BAIKED	SPIKED			
SAMPLE	SITE ID	ANALYTE	SAMPLE	AMOUNT	UNITS	*RECOV	

LCSS1	03LC045-LCS1	Cyanide, Total LCS	1.84	2.0	MG/KG	92.0	
LCSS2	03LC045-LCS2	Cyanide, Total LCS	10.0	10.0	MG/KG	100.1	

INORGANICS DATA SUMMARY REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION PACTOR
	木匠都带出面白洲神名学位可且自己可以				***======	======
-001	B16W87	% Solids	97.4	*	0.01	1.0
		Chloride by IC	1.3 u	MG/KG	1.3	1.0
		Fluoride by IC	1.3 u	MG/KG	1.3	1.0
		Nitrite by IC	1.28 u	MG/KG	1.28	1.0
		Nitrate by IC	5.50	MG/KG	1.28	1.0
		Cyanide, Total	0.28 u	MG/KG	0.28	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
		Sulfate by IC	4.5	MG/KG	1.3	1.0
		Nitrate Nitrite	1.4	MG/KG	0.20	1.0
		Ammonia, as N	4.5 u	MG/KG	4.5	1.0
		Oil & Grease Gravimetri	684 u	MG/KG	684	1.0
		nH		SOTT. PH	0.01	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L366

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	Units	LIMIT	FACTOR
****	************	**************			********	
BLANK10	03L1C032-MB1	Chloride by IC	1.2 u	MG/KG	1.2	1.0
		Fluoride by IC	1.2 u	MG/KG	1.2	1.0
		Nitrite by IC	1.25 u	MG/KG	1.25	1.0
		Nitrate by IC	1.25 u	MG/KG	1.25	1.0
		Phosphate by IC	1.2 u	MG/KG	1.2	1.0
		Sulfate by IC	1.2 u	MG/KG	1.2	1.0
BLANK1	03LCA45-MB1	Cymnide, Total	0.50 u	MG/KG	0.50	1.0
BLANK10	03LVI043-MB1	Chromium VI	0.40 u	MG/KG	0,40	1.0
BLANK10	03LN3A27-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	03 LAMA14-MB1	Ammonia, as N	5.0 u	MG/KG	5.0	1.0
BLANK10	03LOG020-MB1	Oil & Grease Gravimetri	667 u	MG/KG	667	1.0

INORGANICS ACCURACY REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00

			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	*RECOV	factor (SPK)
	**************			******	*****	======	
-001	B16W87	Cyanide, Total	4.46	0.28u	4.45	100.1	1.0
BLANK10	03LIC032-MB1	Chloride by IC	24.2	1.2 u	25.0	96.7	1.0
		Fluoride by IC	24.7	1.2 u	25.0	98.9	1.0
		Nitrite by IC	24.5	1.25u	25.0	98.1	1.0
		Nitrate by IC	24.3	1.25u	25.0	97.2	1.0
		Phosphate by IC	23.4	1.2 u	25.0	93.7	1.0
		Sulfate by IC	24.5	1.2 u	25.0	97.8	1.0
BLANK10	03LVI043-MB1	Soluble Chromium VI	4.0	0.40u	4.0	98.9	1.0
		Insoluble Chromium VI	970	0.40u	1050	92.3	100
BLANK10	03LN3A27-MB1	Nitrate Nitrite	5.2	0.20u	5.0	104.0	1.0
BLANK10	03LAMA14-MB1	Ammonia, as N	196	5.0 u	200	98.0	1.0
		Ammonia, as N MSD	192	5.0 u	200	96.0	1.0
BLANK10	03LOG020-MB1	Oil & Grease Gravimetr	6470	667 u	7240	89.3	1.0
		Oil & Grease - Grav M	7120	667 u	7240	98.3	1.0

INORGANICS DUPLICATE SPIKE REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L366

			SPIKE#1	SPIKE#	2
SAMPLE	SITE ID	ANALYTE	*RBCOV	*RECOV	*DIFF
***	******				
BLANK10	03LAMA14-MB1	Ammonia, as N	98.0	96.0	2.1
BLANK10	03LOG020-MB1	Oil & Grease - Grav	89.3	98.3	9.6

INORGANICS PRECISION REPORT 05/27/03

CLIENT: TNUHANFORD P03-006 H2195

LVL LOT #: 0305L366

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	factor (Rep)
	*************	**************				*********
-001RBP	B16W87	% Solids	97.4	97.4	0.092	1.0
		Cyanide, Total	0.28u	0.38u	NC	1.0

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L366

			SPIKED	SPIKED		
SAMPLE	SITE ID	ANALYTE	SAMPLE	AMOUNT	UNITS	*RECOV

LCS81	03LCA45-LCS1	Cyanide, Total LCS	1.87	2.0	MG/KG	93.6
LCSS2	03LCA45-LCS2	Cyanide, Total LCS	9.66	10.0	MG/KG	96.6

INORGANICS DATA SUMMARY REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
		****	=======	*===*=		
-001	B16W88	* Solids	98.7	¥	0.01	1.0
		Chloride by IC	1.3 u	MG/KG	1.3	1.0
		Fluoride by IC	1.3 u	MG/KG	1.3	1.0
		Nitrite by IC	1.27 u	MG/KG	1,27	1.0
		Nitrate by IC	4.52	MG/KG	1.27	1.0
		Cyanide, Total	0.42 u	MG/KG	0.42	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0
		Sulfate by IC	9.3	MG/KG	1.3	1.0
		Nitrate Nitrite	1.2	MG/KG	0.20	1.0
		Ammonia, as N	4.7 u	MG/KG	4.7	1.0
		Oil & Grease Gravimetri	675 u	MG/KG	675	1.0
		рH	8.9	SOIL PH	0.01	1.0

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/27/03

CLIENT: TNUHANFORD F03-006 H2195 WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
			*******		*********	
BLANK10	03LIC032-MB1	Chloride by IC	1.2 u	MG/KG	1,2	1.0
	•	Fluoride by IC	1.2 u	MG/KG	1.2	1.0
		Nitrite by IC	1.25 u	MG/KG	1.25	1.0
		Nitrate by IC	1.25 u	MG/KG	1.25	1.0
		Phosphate by IC	1.2 u	MG/KG	1.2	1.0
		Sulfate by IC	1.2 u	MG/KG	1.2	1.0
BLANK1	03 LCA45-MB1	Cyanide, Total	0.50 u	MG/KG	0.50	1.0
BLANK10	03LVI043-MB1	Chromium VI	0. 4 0 u	MG/KG	0.40	1.0
BLANK10	03 LN3A27-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	03 LAMA14-MB1	Ammonia, as N	5.0 u	мо/ко	5.0	1.0
BLANK10	03LOG020-MB1	Oil & Grease Gravimetri	667 u	MG/KG	667	1.0

INORGANICS ACCURACY REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

	OPPOPP.	11343-606-001-9999-00
WORK	OKDER:	TT3#3-000-00T-3332-00

MOREC ON			SPIKED	INITIAL	SPIKED	4	DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	*RECOV	Factor (SPK)
BLANK10	03LIC032-MB1	Chloride by IC	24.2	1.2 u	25.0	96.7	1.0
		Fluoride by IC	24.7	1.2 u	25.0	98.9	1.0
		Nitrite by IC	24.5	1.25u	25.0	98.1	1.0
		Nitrate by IC	24.3	1.25u	25.0	97.2	1,0
		Phosphate by IC	23.4	1.2 u	25.0	93.7	1.0
		Sulfate by IC	24.5	1.2 u	25.0	97.8	1.0
BLANK10	03LVI043-MB1	Soluble Chromium VI	4.0	0.40u	4.0	98.9	1.0
		Insoluble Chromium VI	970	0.40u	1050	92.3	100
BLANK10	03LN3A27-MB1	Nitrate Nitrite	5.2	0.20u	5.0	104.0	1.0
BLANK10	03LAMA14-MB1	Ammonia, as N	196	5.0 u	200	98.0	1.0
		Ammonia, as N MSD	192	5.0 u	200	96.0	1.0
BLANK10	03LOG020-MB1	Oil & Grease Gravimetr	6470	667 u	7240	89.3	1.0
		Oil & Grease - Grav M	7120	667 u	7240	98.3	1.0

INORGANICS DUPLICATE SPIKE REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L372

			SPIKE#:	SPIKB#:	2
SAMPLE	SITE ID	ANALYTE	€RECOV	*RECOV	*DIFF
===	======================================		*====		
BLANK10	031AMA14-MB1	Ammonia, as N	98.0	96.0	2.1
BLANK10	03L0G020-MB1	Oil & Grease - Grav	89.3	98.3	9.6

INORGANICS PRECISION REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L372

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	result	REPLICATE RPI		FACTOR (REP)
******	************	************		********	****	
-001REP	B16W88	* Solids	98.7	98.4	0.39	1.0

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/27/03

CLIENT: TNUHANFORD F03-006 H2195

LVL LOT #: 0305L372

			SETVED	SLIKED				
SAMPLE	SITE ID	ANALYTE	SAMPLE	THUOMA	UNITS	*RECOV		
					=====			
LCSS1	03LCA45-LCS1	Cyanide, Total LCS	1.87	2.0	MG/KG	93.6		
LCSS2	03LCA45-LCS2	Cyanide, Total LCS	9.66	10.0	MG/KG	96.6		

(6) VOA BNH PIPCO FROM INMINES DIG NICH

Lionville	Laboratory	Use	Only

Custody Transfer Record/Lab Work Request Page _ i of _

Liquid

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Est. Final Proj. Sampling Date

Client TNU-Hamford

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Refrigerator #

F03-006

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MATRIX CODES: S - Soil SE - Sediment SO - Solid	Lab ID	Cile	nt ID/Descrip	otion	Cho:	C sen ()	Matrix	Date Collected	Time Collected					!					ICRI	EN3 NL	TOGGR			
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FH-Central Plateau Project	СНА	IN OF CUST	ODY/S	AMPL	E ANALY	YSIS	REQUES	Γ	FO:	3-006-67	Page 1	of ·1
Collector Johansen/Pope/Pfister	Company LC Huls	Contact	Telepho 373-3	ne No.			Project Coord TRENT, SJ		Price Code	8N		rnaround
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampling 216-A-3	Location 7 (C4106); (72.5'-75)				SAF No. F03-006		Air Quality		45.	Days
Ice Chest No. FRC -01-038	Field LogI HNF-N-			COA 117504E	S10		Method of Shi Federal Expr					
Shipped To REZ RA EBERLINE SERVICES (Formerly TMA) Possible SAMPLE HAZARDS/REMARKS	Offsite Pro	operty No.	103	0 22	-1		Bill of Lading	Air Bill I	No. ≤ #	ee (spe	
POSSIBLE SAMPLE HAZARDS/REMARKS]	ł				
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Tie TO BIGWOO	Т	ype of Container	aG	aG	aG	aG	aG/					
Special Handling and/or Storage	N	o. of Container(s)	1	1	1	1	7					
		Volume	120mL	60mL	120mL	60m	L 60mL					
			Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	Sec item (
SAMPLE ANALYSIS			1	}		Instructi			}			
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CHAIN OF POSSESSION	Sign/Print Na	<u></u>		l CDE	CIAL INSTR	UCTIO	NS 98	4/	24/03			Matrix *
Relinquished By/Rerhaved Fram Date/Time Rec	cived By/Stored In		te/Time		The laboratory is	to achiev	o a detection limit	of 50.0 pCi/	g for Carbon 14.	** The laborate	ory is to	S=Soil
			03 143				el range compound:		-			SE=Sediment SO=Solid
Relinquished By/Removed From Date/Time 1436 Rec	1 B 3		te/Time (4		Niekel-63; Nep	Strontuum tuuluun-2:	-89.90 - Total Sr,		onum (Thorium-)	232); Carhon-14	l; Iodine-	SI=Sludge W = Water
Relinquished By/Removed From Date/Time 1000 Rec	eived By/Stored In	Da	te/Time 10	00			14	,	12010)			O=Oil A=Air DS=Drum Solids
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FH-Central l	Plateau Project	C	HAIN OF CUST	ODY/S	AMPLE	ANAL	YSIS	REQUEST_	Fo:	3-006-68	Page <u>1</u>	of 1
Collector Johansen/Pope/Pfister			nny Contact Hulstrom	Telepho 373-3				Project Coordinator TRENT, SJ	Price Code	8N	Data Tur	ŀ
Project Designation 200-PW-2/200-PW-4	OU - Borchole Soil Sampling		ing Location -A-37 (C4106); (97.5'-10	00')				SAF No. F03-006	Air Quality	· 🗆	45]	Days
Ice Chest No.	ERC 01-038	HN	Logbook No. F-N-3361		COA 117504ES	10		Method of Shipment Federal Express	·			
Shipped To EBERLINE SERVICE	CECKA CHAZARDS/REMARKS	Offsite	e Property No.	7030	9 22	1		Bill of Lading/Air F	Bill No. SE	f_ 05	PC	
POSSIBLE SAMPLE	HAZARDS/REMARKS	1 *****		Cool 4C	Cool 4C	Cool 4C	Non	ie None				
Tres	TO BILWPI		Preservation Tune of Container	aG	aG	aG	aG	ag/			 	
Special Handling as	nd/or Storage		Type of Container No. of Container(s)	1	1-1-	ì	1	1/-	- 	<u> </u>		
	co0140C		Volume	120mL	60mL	120mL	60m	L 60mL		 		
				Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Speci					
	SAMPLE ANAL	YSIS					Instruct	103 NB				
							l bal	aly	Tie	to:		
Sample No.	Matrix *	Sample Date	Sample Time							<u> </u>		
B16W85	SOIL	4-30-0	3 1238	1	_X_	1	<u> </u>		BILL	ψ <u>D1</u>	<u> </u>	
<u> </u>		 _		 						 	 	
				 	 	<u> </u>	-			 		
CHAIN OF POS		Sign/Prin		ate/Time	SPEC	CIAL INSTR	RUCTIO	ONS ASA- ve a detection limit of 50:0	4/22/03	** The laborat	ory is to	Matrix *
Relinquished By/Removed I	201000 41201631430	R.COL	Reference 4	30-0314				sel range compounds from		110 100111	<i>M</i> , 10 10	S=Soil SE=Soliment SO=Solid
Relinquished By/Removed I	From Date/Time 1 13			ate/Time / 4 30 03		echnotium 99, Nickel 63, Ne		n-89,90 - Total Sr; Isotop	Thorium (Thorium-	232}; Carbon-1	4; Iodine-	SI=Sludge W = Water
Relinquished By/Removed	, ,	Received By/Sto	red in D	ate/Time / 0	00			1/20/0	1.0			O-Oil A-Air DS-Drum Solids
Religentshed By/Removed	From FRe Date/Time Co	Received By/Sto		5·2·0 ate/Time	2							DL=Drum Liquids T=Tissue WI=Wipe
Relinquished By/Removed	From Date/Time	Received By Std	redin D X My M 5 3	ate/Time								L=Liquid V=Vegetation X=Other
Relinquished By/Removed	<u> </u>	Received By/8to	rod in D	-03 //: rate/Time	∞							
<u></u>	eccived By			т	itle			-	<u>-</u>		Date/Time	<u> </u>
SECTION		<u></u> -		<u></u> -		P	and Dec		<u> </u>			
FINAL SAMPLE DISPOSITION	risposal Method					Dispo	sed By			1	Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

Purchase Order/Project:

DATE: 5.3.03

(AF#) SOW# / Release #: F03.006

Laboratory SDG #:

	ALL ENTRIES MARKED "NO" MUST BE I	EXPLAINED IN	THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	N/Yes	. DNo	□ N/A	see Comment #
2.	Outside of coolers or shipping containers are free from damage?	Yes	□ No	□ N/A	☐ see Comment #
3.	Airbill # recorded?	DY'es	□ No	□ N/A	□ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	D-Yes	□ No	D N/A	🗅 see Comment #
5.	Sample containers are intact?	Yes	□ No	□ N/A	psee Comment #
6.	Custody seals on sample containers intact, signed and dated?	190res	□ No	□ N/A	☐ see Comment #
7.	All samples on coc received?	Yes	□ No	□ N/A	see Comment #
8.	All sample label information matches coc?	Yes Yes	□ No	□ N/A·	sec Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	□ Yes	□ No	DNA	□ see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	Yes Yes	□ No	□ N/A	🗅 sec Comment (
11.	Where applicable, bar code labels are affixed to coc?	□ Yes	□ No	(D)N/A	☐ see Comment
12.	coc signed and dated?	SDYes	□ No	□ N/A	☐ see Comment
13.	coc will be faxed or emailed to client?	E Yes	□ N ₀	□ N/A	🗅 see Comment
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	r □ Yes	D No	ŒN/A	D see Comment

Cooler # / temp (°C) and Comments:

ERC 01-038/0.6"

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

	1	
C1 357	FIELD PERSONNEL: COMPLETE ONLY SHA	C

03051	_35	7		FIELD PE	RSONN	EL: C	OMPLI	ETE ONL	Y SHAD	ED A	REA	S							A	b	C	ONVITLETA	BORATO	YINC.
Client TN	Ju 1	tamford	F03-	-00L			Refrige	rator #											2		7			
Est Final Pro	l Sami	olina Date					#/Type	Container	Liquid									L			<u> </u>	 		
Project #		(343- 6	06-001.9	999,00			#/Type	Container	Solid										lag	ممد	امما	 		
Project Conta	ct/Pho	ne #		: <u></u>			Volume	, .	Liquid		<u> </u>								<u> </u>		<u> `</u>	├ ──		
Lionville Labo	oratory	Project Mar	nager <u>Willi</u>	the york	<u> </u>	<u> </u>			Solid						<u> </u>		!		130	٥٥	120			├ ─┤
OC SPEC		Del	DTAT S	300dlp	·		Preser	vatives	_1) OBG	ANIC					INC	BG	- 1		 - 	 		
Date Rec'd	5 i.	ა ³	Date Due	6-16-	ره چر در		ANALY REQUE		-	VOA		Pest/ PCB	Herb				Metal	Z S	\$ £	NO2/	Se 25		,	
		T				atrix		1		- -	<u> </u>	11	_	<u> </u>	Lionvi	ile La	<u> </u>				1		لـــــــــــــــــــــــــــــــــــــ	
MATRIX CODES: S - Soil SE - Sediment SO - Solid	Lab ID		Client ID/Desci	ription	G	QC losen (V)	Matrix	Date Collected	Time Collected										ICRE	INJAZ	TOGGR			
SL - Sludge W - Water		a v	101			MSD	5	 	-000	┢╾									×	×	 			$\vdash \dashv$
O - Oil A - Air	001	Blow	<u> </u>		- 12	 	3	55.03	0905	 		+					 	-	 	/>		 		$\vdash \vdash \vdash$
DS - Drum Solids	 	 				+-	<u> </u>	 	 -	 -		1		<u> </u>	 		 		 		 		-	1
DL - Drum Liquids		-			- -	┼-	<u> </u>	 	 -			 			 		 	}	 	 	 		H	
L - EP/TCLP Leachate		 				┼─		┼	 -	 	-	╂╾╌┥		-	 		├	 	1		┼─			
WI - Wipe X - Other	<u> </u>	 				+-		 	 		-			 	 		 -	 	├──	<u> </u>	├──	\vdash	 	$\vdash \vdash \vdash$
F - Fish		 				-	 	┼	 			 		├	 	}	-	 -	┼		+	\vdash	 	\vdash
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 _	<u> </u>					DATE	/REVISIO	NS:	<u> </u>	<u></u>	<u>L.</u> .		<u> </u>	<u> </u>	<u></u>	L	┖┌─		<u> </u>	<u></u>	<u>ـــــــــــــــــــــــــــــــــــــ</u>	<u></u> _	<u> </u>	<u>ــــ</u>
Special Instruc	tions:	SAF =	# F03-4	00 6		۶.,	Y-0)	1. Per C	him	D.	4	ate =	٤ 4	- (<u>L</u> -c	2)		_				 -	Use O		
<u> </u>								2. Add								le Ni	Si	amples Sh i ppe	were:	or	1)	mper Resi Present	t on Ou	uter
<u>, </u>	2.1	1 00 0	(== 0 =	57,366,37				3. Pb. S	h 50 /	100	. 6/	CI A	لاً.	AXO	PA	504	- Há		livered			ackage		
\	vare	t ac to	r (())	2 / 26 6 2	, .												_ [<u>F</u>	928	? <u>/83</u>	120	3C) Pi	Unbrok ackage	en on v	N
1								4. INHE					<u> </u>	, U GH C	31,1	שאט	1 1		ent or C		3)	Present	it on Sa	
<u> </u>								5. ODR	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 21	W	U							ved in 0 n⊘r) o		4)	Unbrok		' '`
				<u> </u>				6				<u></u> _						Samp	les Presen	rod	Sa	ample (Y) or	1
Relinquishe by	d	Received by	Date	Time	Relingu			Received by	1 -	ate	771	me			ies Bet abels ar			•	(y) 0	r N		OC Rec pon San	np le Re	ec't
Hed Ex) Whit	n 5703	10:10): IPC	SILE	0	RIGIN		1.		CO		rd? Y) Recer			Cr	ooler emp. <u>2</u>	<i>⊕</i>)∘ 0.3	- 1
						VAS	TE	R	WRT		N		"						Ø •	r N	Te	mp. 🚾		-℃

FH-Central	Plateau Project	CI	IAIN OF CUST	ODY/S	AMPLI	E ANALY	YSIS	REQUEST		F03	3-006-69	Page 1	of 1
Collector Johansen/Pope/Pfist	ier		nny Contact Hulstrom	Telephor 373-3				Project Coording TRENT, SJ	ator	Price Code	8N	Data Tur	
Project Designation	4 OU - Borehole Soil Sampling		ing Location -A-37 (C4106); (147.5'-1	150')				SAF No. F03-006		Air Quality		45 1)ays
Ice Chest No.	ERC 01-063	Field 1	Logbook No. F-N-3361		COA 117504ES	S10		Method of Ship Federal Expre					
Shipped To	RECKA ASILICES (Formerly TVIA) 4/7:	Offsite	Property No.	7030	222			Bill of Lading/	Air Bill	No. SE	E OSF	~	
POSSIBLE SAMPL	E HAZARDS/REMARKS	74)	Preservation	Cool 4C	Cool 4C	Cool 4C	Non	ne None					
-	TO BIG WOO		Type of Container	aG	aG	aG	aG	24					
Special Handling	and/or Storage		No. of Container(s)	1	1	1	i	1					
			Volume	120mL	60mL	120mL	60m	iL 60mL					
	SAMPLE ANAI	YSIS	<u> </u>	Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Speci Instruct	iài/					
							N	yleri			Tieto:	F1. AF	
Sample No.	Matrix *	Sample Date	Sample Time			<u></u>					2/1.33	0.4	
B16W86	SOIL	5/5/3	0900	1	+	1 1/2	γ_					BIG	1200
<u> </u>						 	┢						
CHAIN OF PO	ACCESSION.	Sign/Prin	t Namet	<u> </u>	CDE	ECIAL INSTI	PUCTI	ons AS	ve 1	1/22/03	<u>. </u>	<u> </u>	Matrix *
Relinquished By/Remove	d From Date/Time	Received By/Sto		ate/Time	***	The laboratory is	s to achie	eve a detection limit	£ 50.0 oC	yg for Carbon-14.	** The laborat	ory is to	S=Soil SE=Sediment
Relinquished By/Remove	d From Date/Time	Received By/Sto	red In	ate/Time /	(1)	Technelium-99; Nickel-63; Ne		m-89,90 - Total Sr,			-232); Carbon-l	4; Todine=	SO=Solid SI=Sludge W = Water
Relinquished By/Remove	d From Date/Time 1090	Received By/Sto	3 CO 133	5 6 6 5				-17	4/1	2763			O=Oil A=Air DS=Drum Solids
Relinquished By/Remove		Received By/Sto		ate/Time		Personnel relinquish	sample	s from the 3728	=	<u>.</u>			DL-Dram Liquids T-Tissue WI-Wipe
Relinquished By/Remove	<u>5.7.03/10:10</u>	Received By/Sto		Sale/Time	2	Ref# _ <i>1 16</i>	<u></u> on _ <u>-</u> 2	5 16 103	-				L=Liquid V=Vegetation X=Other
Relinquished By/Remove		Received By/Sto		Date/Time									
	Received By		,		itle			·				Date/Time	l
SECTION													
FINAL SAMPLE DISPOSITION	Disposal Method					Disp	osed By				1	Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU Hanford

urchase Order/Project:

DATE: 5.7.03

AF#/SOW#/Release#: FO3-00L

,aboratory SDG #:

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION Custody seals on coolers or shipping YYes D No D N/A See Comment # container intact, signed and dated? Outside of coolers or shipping containers are ☑ Yes D No DNA ☐ see Comment # free from damage? Airbill # recorded? 3. □ No D N/A See Comment # All expected paperwork received (coc and X Yes D No D N/A other client specific: historical data, See Comment # alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) Sample containers are intact? D No □ N/A ☐ see Comment # Custody seals on sample containers intact, D No. DNA ☐ sec Comment # signed and dated? All samples on coc received? V Yes D No DNA D see Comment # O Yes D No DN/A D see Comment # All sample label information matches coc? Laboratory QC samples designated on coc? Yes Yes □ No D N/A D see Comment # (QC stickers placed on bottles?)

X Yes

D Yes

YQ)Yes

Yes.

□ Yes

D No

D No

D No

D No

D No

D N/A

O'N/A

D N/A

D N/A

☐ see Comment #

☐ see Comment #

☐ see Comment #

See Comment #

☐ see Comment #

Cooler # / temp (°C) and Comments:

affixed to coc?

12. coc signed and dated?

ECC-01-063 / 2.3"

14. Project Manager/Client contacted

10. Shipment meets LvLl Sample Acceptance

11. Where applicable, bar code labels are

13. coc will be faxed or emailed to client?

concerning discrepancies? (name/date)

Policy? (identify all bottles not within policy. See reverse side for policy)

Laboratory Sample Custodian:

Laboratory Project Manager:

al Anier

	Lionville	Laboratory	Use	Only
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Custody Transfer Record/Lab Work Request Page 1 of 1

0305	1.364.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

		3.Z																	<u> </u>	<u> </u>	<u> </u>				
Client T1	Ju-	Hamford	Fo	3-006				Refriger	rator#											2-		<u> </u>	_	+	
Est. Final Proj								#/Type (Container	Liquid														+	}
		11343-606.	001-9	199-00						Solid										100	Jag) eq		4	—
Project Conta	ct/Dha	na #					_	Volume	,	Liquid			-												
Lionville Labo	ratory	Project Manager	Orgi	4/ ****	by	Lin-	ᆚ			Solid	 									150	100	190			
ac SPEC	 ,	Del 510	TAT	3000A	9		}	Preserv	atives	<u> </u>	<u> </u>	OBG	ANIC			_		INOI	RG	= ;	=	- 1	-+	+	
				£ - (v	_			ANALY		-	₹			£		Í	ľ	Metal	_	ج و	2 2	کو ٹ	ļ		<u> </u>
Date Rec'd _	<u>5-8-</u>	<u>ిక</u> ర	ate Due _	-6:7	-03 ₇		[REQUE	SIED		٥ ٧	BNA	Pest/ PCB	Herb								<u>ბზ</u>		<u> </u>	
MATRIX						Mat				- -				<u> </u>	<u> </u>	Lionvi	lle Lat	orato	ry Use	e Only		- 	 -	—	
CODES: S - Soil SE - Sediment	Lab 1D	Ciler	nt ID/Descri	otion		Cho (v	sen	Matrix	Date Collected	Time Collected								[ICRE	エんひんと	0 G G A			
SO - Solid SL - Sludge						MS	MSD					<u> </u>								Ĭ	ਮ	1.0			
W - Water O - Oil	∞	BILOW87				K	X	S	5.603	0945					!					メ	X	X			
A - Air DS - Drum						7	r(e d ->						<u>L</u> _											-	
Solids DL - Drum							: <u> </u>												•						
Liquids						. :																			
Leachate						-											- 27							1	
WI - Wipe X - Other	 												1												
F- Fish			7.														:				1				
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}	 	1		<u>.</u>					1 == =	<u> </u>	<u> </u>	† —	<u> </u>	T_	1										
	 	 							 		 	†	1		1			-			T -				
Special Instruct	tions:	SAF #	FOL	-006	1	<u> </u>	DATE/	REVISIO	NS:		<u> </u>	<u> </u>				<u> </u>	L	_	===	Lionvi	le Lab	oratory	Use On	ily	
)		2ML -		_ •			<u>5-14</u>	-0 >	1. Per C	hind_	Dur	0 4	<u>e:</u>	6 - (-07			Sa	mptes	were:/	,	Tar	mper Resis	∹ stänt Se	al was:
İ									2. A.J:	Az. A.	<u>B</u> .0	<u> </u>	Be B	<u>}`_C,</u>	<u>(, Cr.</u>	Cul	4s	1)	Shippe ind Dei	nd 🗸	or		Present ckage		
Bate	h (2C Fr L33	39, 357,	366,377	L				3. N: P	b sb.s.	12	c : c(,	FI, M	03. <i>N</i> O	2.P0	14.5	04	Air	bill#_			2)	Unbroke		
	•								4. INHIA	1 .	7 1	424	н с	1625	1 6	GCS	C. OPC	\mathcal{B}	Marien			Pa	ckage 🕻	∮ or a second	N
														1 00	<u>· 1.V</u>	4			Receiv			3)	Present	on Sa	
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Relinquishe by	d	Received by	Date	Time	Rel	linqui: by			Received by	ORIG	P rio A	П	me		repand nples La			,		(y) o			oon Sam	pje Re	ec't
Was !	10	<u> </u>	5883	w.w		Ċ	Off	क्षा						CO	C Reco	rd? Y	or 🕢		Receiv olding T	īmes		C	onler .	(Y) or	
TRO/CX		THE PROPERTY OF	3.102	10.50	}		WA	SIE	-	REWE	HH			NO	TES:				-	(Y) 0	r N	Te	emp <u>e</u>	2.0	_ ℃

FH-Central Plate	au Project	C	HAIN OF CUS	TODY/S	SAMPLE	ANAL	YSIS	REQUEST		F03	-006-70	Page 1	of 1
Collector Johansen/Pope/Pfister		Comp	any Contact Hulstrom	Telepho 373-3	ne No.			Project Coordin TRENT, SJ	ator	Price Code	8N	Data Tur	
Project Designation 200-PW-2/200-PW-4 OU -	Borehole Soil Sampling		ling Location 6-A-37 (C4106); (197.5	'-200')	.	<u> </u>		SAF No. F03-006		Air Quality		45 J	Days
Ice Chest No.	99.022	Field HN	Logbook No. F-N-3361		COA 117504ES	10		Method of Ships Federal Expres		<u></u>			
Shipped To EBERLINE SERVICES (EA	CELLA Ormerly TMA) ASP	4/22/03 Offsit	e Property No.	A036	22	>		Bill of Lading/A	ir Bill N	io. SE	E B	pc	
POSSIBLE SAMPLE HAZ	ARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None				·	
	BIGMDO		Type of Container	aG	aG	аG	a G	ac					
Special Handling and/or	Storage		No. of Container(s) 1	1	1	1	1					
			Volume	120mL	60mL	120mL	60m	iL 60mL					ŀ
	SAMPLE ANAL	YSIS		Chromium Hex - 7196		Oil & Grease - 413.1	See item Speci Instruct	ial /					
							1 1/	Alv		Tieto:	!	1	<u></u>
Sample No.	Matrix *	Sample Date	Sample Time				l. Linguis						
B16W87	SOIL	5/6/03	0945	1 1	<u> </u>	1	V			Brawe		<u> </u>	
				- 	+	 	\vdash			 	<u> </u>	 	
	 	<u> </u>					-		 -		<u> </u>		
					1 -		1 -						
CHAIN OF POSSESS		Sign/Pri			SPE	CIAL INST	RUCTI	ONS 15/L	4/	22/13	** The laborat	ony ie to	Matrix *
Relinquished By/Removed From	Date/Time	Received By/Sto		Date/Time (6)63 11(sel range compounds			THE ISOUR	.019 13 10	S=Soil SE=Sodiment SO=Solid
Relinquished By/Removed From	Date/Time 1000	Received By/Sto	ored In	Date/Time	10 00 (1)	rechnetium-99 Nickel 63; No	Strontiu	m-89,90 — Total Sr, I	otopic Th	orium (Thorium-2	32}; Carbon-1	4, Iodine	SI=Sludge W = Water O=Oil
Relinquished By/Removed From		Received By/Sto		Date/Time									A=Air DS=Drum Solids DL=Drum Liquids
	5 8 03 (0:00	Received By Au	red in	Date/Time	1 1		nples fro	om the 3728	-				T=Tissue W!=Wipc L=Liquid V=Vegetation
Relinquished By/Removed From	Date/Time	Received By/Sto	ored In	Date/Time				·					X=Other
Relinquished By/Removed From	Date/Time	Received By/Sto	ored In	Date/Time									}
LABORATORY Received SECTION	Ву	· · · · · · · · · · · · · · · · · · ·		7	Title						r	Date/Time	
FINAL SAMPLE Disposal DISPOSITION	Method					Disp	osed By			· · · · · · · · · · · · · · · · · · ·	1	Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

CIONT: TNU Hanford

urchase Order/Project:

DATE: 5.8.03

AF# SOW# / Release #: FO3 - OOL

_aboratory SDG #:

aborate	ory SDG #: 0305L36L				
NOTE:	ALL ENTRIES MARKED "NO" MUST BE I	EXPLAINED II	THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	19/Yes	, DNo ,	DNA	D see Comment #
2.	Outside of coolers or shipping containers are free from damage?	Yes	□ No	□ N/A	☐ see Comment #
3.	Airbill # recorded?	GYes :	□ No	D N/A	□ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	S Yes	□ No	D N/A	see Comment #
5.	Sample containers are intact?)3ºYes	□ No	□ N/A	D see Comment #
6.	Custody seals on sample containers intact, signed and dated?	Yes	□ No	□ N/A	☐ see Comment #
7.	All samples on coc received?	Yes	□ No	D N/A	see Comment #
8.	All sample label information matches coc?	Yes	□ N ₀	□ N/A·	See Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bonles?)	T/Yes	□ No	D N/A	☐ see Comment #
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	Vies	□ N₀	D N/A	□ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	□ Yes	□ N ₀	ATHE	□ see Comment #
12.	coc signed and dated?	Dyes	□ No	□ N/A	See Comment #
13.	coc will be faxed or emailed to client?	⊠ Yes∙	D №	□ N/A	See Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	r □ Yes	□ No	ENVA	D see Comment #

Cooler # / temp (°C) and Comments:

ERC 99-022 /2.0"

Laboratory Sample Custodian:

Laboratory Project Manager:

D (Mich)

(6) VOA, BNA, PITCHS-From, Mytali, 116, Nich

Lionville Laboratory Use Only

Custody Transfer Record/Lab Work Request Page 1 of 1

03054372

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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FH-Central Plate	au Project	C	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST F03-006-71 Page										of <u>1</u>
Collector Johansen/Pope/Pfister		Compa	any Contact Hulstrom	Telephor 373-3	ne No.	Project Coordinator TRENT, SJ				Price Cod	Price Code 8N		naround
Project Designation 200-PW-2/200-PW-4 OU - I	Borehole Soil Sampling		Sampling Location SAF 216-A-37 (C4106); (237.5'-240') F03-							Air Qua	lity 🗌	45 1	Days ————
ice Chest No. ERC	-01-040	LIN	Logbook No. F-N-3361		COA 117504ES				Shipment Express				
Shipped To ERERLINE SERVICES (FO POSSIBLE SAMPLE HAZ	CECLOP ormerly IMA) 2012	4/22/67 Offsit	e Property No.		Bill of Lading/Air Bil					III No. See OSPC			
POSSIBLE SAMPLE HAZ	ARDS/REMARKS	4.59.2	Preservation	Cool 4C	Cool 4C	Cool 4C	Nor	ne N	nne				·
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Special Handling and/or		No. of Container(s)	1	1	1 1	/							
			Volume	120mL	60mL	120mL	60n	nL / 60	mL				
	SAMPLE ANA	LYSIS	· · · · · · · · · · · · · · · · · · ·	Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413,1	See item Spec Instruc	rial /	m - H3				
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CHAIN OF POSSESS	ION	Sign/Pri	nt Names	<u> </u>	SPI	ECIAL INST	LRUCTI	ONS	175/	- 4/22/	e 3	l	Matrix *
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Relinquished By/Removed From 3726 Cef 18 Relinquished By/Removed From	tored in	re	Personnel not available to relinquish samples from the 3728 Ref # 16 on 5 / 8 / 25							DS=Dram Solid DL=Dram Liqui T=Tissus W!=Wipe L=Liquid			
Relinquished By/Removed From FEVEY	5 4 0 3 08 Date/Time 5-9-03 09	Received By/S	lack Hong &	Date/Time					_	·			V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By/S	tored in		Title							Date/Time	
LABORATORY Received	d By	_			TIGE				<u></u>				
FINAL SAMPLE Dispose	al Method					Dis	posed By	1				Date/Time	

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

IENT: THU HANGORD

chase Order/Project:

DATE: 5-9-03

F#/SOW#/Release #: [=03-006

poratory SDG #: 03056372

1.	Custody seals on coolers or shipping container intact, signed and dated?	Q∕Yes	. DNo .	□ N/A	☐ see Comment #
	COURTIES INTROCA SIGNED and dated?			•	÷
2.	Outside of coolers or shipping containers are free from damage?	⊠ Yes	□ No	D N/A	see Comment #
3.	Airbill # recorded?	ØYes :	□ No	□ N/A	☐ see Comment (
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	Ø√es	□ N ₀	□ N/A	☐ see Comment #
5.	Sample containers are intact?	ØYes	□ No	D N/A	D see Comment
6.	Custody seals on sample containers intact, signed and dated?	ØYes □	□ No	□ N/A	See Comment
7.	All samples on coc received?	12 Yes	□ No	□ N/A	see Comment
8.	All sample label information matches coc?	Yes	□ No	□ N/A·	🗆 see Comment
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	Ø Yes	□ No	□ N/A	☐ see Comment
10.	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	E Yes	□ No	□ N/A	C) see Commen
11.	Where applicable, bar code labels are affixed to coc?	□ Yes	□ No	BWA	Sec Commen
12.	coc signed and dated?	□ Yes	□ N ₀	D N/A	☐ see Commen
13.	coc will be faxed or emailed to client?	E Yes-	□ N ₀	D N/A	D see Commer
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	• □ Yes	□ No	M N/A	☐ see Comme

Cooler # / temp (°C) and Comments:

FRC 01 -040

Laboratory Sample Custodian:

Laboratory Project Manager:



July 14, 2003

Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Avenue Richland, WA 99352

Reference:

P.O. #630

Eberline Services R3-05-021-7508, SDG H2195 - Supplemental Report

Dear Mr. Trent:

Enclosed is the data report for five solid samples designated under SAF No. F03-006 received at Eberline Services on May 5, 8, and 9, 2003. The samples were analyzed according to the accompanying chain-of-custody documents. This supplemental report is being issued to report isotopic thorium data.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion

Mellin Momm

Program Manager

MCM

Enclosure: Data Package



Case Narrative

Page 1 of 2

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2195 was composed of five solid (soil) samples designated under SAF No. F03-006 with a Project Designations of: 200-PW-2/200-PW-4 OU – Borehole Soil Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Iodine-129 Analyses

No problems were encountered during the course of the analyses.

2.7 Isotopic Thorium Analyses

Due to Th-228 and Th-230 (above RDL 1.0 pCi/g) activity in the method blank the thorium samples were reanalyzed with new QC samples. No problems were encountered during the course of the reanalyses.

The isotopic thorium data reported herein supercedes and is considered of better quality then the thorium data issued in SDG H2195 dated June 25, 2003.

2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

Fluor Hanford Inc. SDG H2195 – Supplemental Report

Case Narrative

Page 2 of 2

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa C. Mannion

Program Manager

Date

EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2195

SUMMARY DATA SECTION

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Work Summary	•			•	6
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Duplicates	•		•		13
Matrix Spikes	•	•	•	•	15
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Melin Mann Prepared by

Melin Marris

Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 07/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2195

SDG <u>7508</u> Contact <u>Melissa C. Mannion</u>

REPORT GUIDE

Client	Han	ford_	
Contract	No.	630	
Case no	SDG	H2195	

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES
Page 1
SUMMARY DATA SECTION
Page 1

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/14/03

SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

GUIDE, cont.

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no SDG H2195

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 2

SDG 7508 Contact <u>Melissa C. Mannion</u>

LAB SAMPLE SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2195</u>

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R305021-01	B16W84	216-A-37 (C4106)	SOLID	F03-006	F03-006-67	04/30/03 09:00
R305021-02	B16W85	216-A-37 (C4106)	SOLID	F03-006	F03-006-68	04/30/03 12:38
R305021-03	B16W86	216-A-37 (C4106)	SOLID	F03-006	F03-006-69	05/05/03 09:00
R305021-04	B16W87	216-A-37 (C4106)	SOLID	F03-006	F03-006-70	05/06/03 09:45
R305021-05	B16W88	216-A-37 (C4106)	SOLID	F03-006	F03-006-71	05/07/03 10:50
R305021-06	Lab Control Sample		SOLID	F03-006		
R305021-07	Method Blank		SOLID	F03-006		
R305021-08	Duplicate (R305021-04)	216-A-37 (C4106)	SOLID	F03-006		05/06/03 09:45
R305021-09	Spike (R305021-04)	216-A-37 (C4106)	SOLID	F03-006		05/06/03 09:45
R305021-10	Lab Control Sample		SOLID	F03-006		
R305021-11	Method Blank		SOLID	F03-006		
R305021-12	Duplicate (R305021-04)	216-A-37 (C4106)	SOLID	F03-006		05/06/03 09:45

LAB SUMMARY
Page 1
SUMMARY DATA SECTION
Page 3

Lab id <u>EBRLNS</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LS</u>

Version <u>3.06</u>

Report date <u>07/14/03</u>

SDG 7508 Contact Melissa C. Mannion

QC SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2195</u>

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE	BASIS AMOUNT	DAYS S		LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7508	F03-006-67	B16w84	SOLID	91.0	132.3 g		05/05/03	5	R305021-01	7508-001
	F03-006-68	B16w85	SOLID	90.5	142.8 g		05/05/03	5	R305021-02	7508-002
	F03-006-69	B 16w86	SOLID	97.0	150.6 g		05/08/03	3	R305021-03	7508-003
	F03-006-70	B16¥87	SOLID	97.6	178.8 g		05/08/03	2	R305021-04	7508-004
	F03-006-71	B16w88	SOLID	98.3	191.3 g		05/09/03	2	R305021-05	7508-005
		Method Blank	SOL ID						R305021-07	7508-007
		Method Blank	SOLID						R305021-11	7508-011
		Lab Control Sample	SOLID						R305021-06	7508-006
		Lab Control Sample	SOLID						R305021-10	7508-010
		Duplicate (R305021-04)	SOLID	97.6	178.8 g		05/08/03	2	R305021-08	7508-008
		Duplicate (R305021-04)	SOLID	97.6	178.8 g		05/08/03	2	R305021-12	7508-012
		Spike (R305021-04)	SOLID	97.6	178.8 g		05/08/03	2	R305021-09	7508-009

QC SUMMARY
Page 1
SUMMARY DATA SECTION
Page 4

SDG	7508		
Contact	<u>Melissa</u>	С.	<u>Mannion</u>

PREP BATCH SUMMARY

Client	<u>Hanford</u>
Contract	No. 630
Case no	SDG H2195

			PREPARATION	ERROR			- PL/	WCHETS	ANALY2	ZED	QUALI-
TEST	MATRIX	METHOD	BATCH	2σ %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG MS/ORIG	FIERS
Alpha NP	Spectros SOLID	copy Neptunium in Soil	7060-157	5.0	5			1	1	1/1	
TH	SOLID	Thorium, Isotopic in Soil	7060-157	5.0	5			1	1	1/1	
Beta SR	Counting SOLID	Total Strontium in Soil	7060-157	10.0	5			1	1	1/1	······································
TC	SOLID	Technetium 99 in Soil	7060-157	10.0	5			1	1	1/1	
Gamma I	Spectros SOLID	copy Iodine 129 in Soil	7060-157	10.0	5			1	1	1/1	
Liqui C	d Scintil SOLID	lation Counting Carbon 14 in Soil	7060-157	10.0	5			1	1	1/1	
Н	SOLID	Tritium in Soil	7060-157	10.0	5			1	1	1/1 1/1	x
NI_L	SOLID	Nickel 63 in Soil	7060-157	10.0	5			1	1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY
Page 1
SUMMARY DATA SECTION
Page 5

SDG 7508 Contact <u>Melissa C. Mannion</u>

LAB WORK SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2195</u>

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY SAF NO	MATRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	вү	METHOD
R305021-01	B16W84		7508-001	С		06/13/03	06/24/03	MCM	Carbon 14 in Soil
04/30/03	216-A-37 (C4106)	SOLID	7508-001	н ·		06/14/03	06/24/03	MCM	Tritium în Soil
05/05/03	F03-006-67 F03-00	06	7508-001	I		06/13/03	06/24/03	MCM	Iodine 129 in Soil
			7508-001	NI_L		06/06/03	06/24/03	MCM	Nickel 63 in Soil
			7508-001	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-001	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-001	TC		06/20/03	06/24/03	MCM	Technetium 99 in Soil
			7508-001	TH	A1	07/09/03	07/14/03	MCM	Thorium, Isotopic in Soil
R305021-02	B16W85		7508-002	С		06/13/03	06/24/03	MCM	Carbon 14 in Soil
04/30/03	216-A-37 (C4106)	SOLID	7508-002	Н		06/15/03	06/24/03	MCM	Tritium in Soil
05/05/03	F03-006-68 F03-00	06	7508-002	I		06/14/03	06/24/03	MCM	Iodine 129 in Soil
,			7508-002	NI_L		06/06/03	06/24/03	MCM	Nickel 63 in Soil
			7508-002	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-002	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-002	TC		06/20/03	06/24/03	MCM	Technetium 99 in Soil
			7508-002	TH	A1	07/09/03	07/14/03	MCM	Thorium, Isotopic in Soil
R305021-03	B16W86		7508-003	С		06/13/03	06/24/03	МСМ	Carbon 14 in Soil
05/05/03	216-A-37 (C4106)	SOLID	7508-003	Н		06/15/03	06/24/03	MCM	Tritium in Soil
05/08/03	F03-006-69 F03-00	06	7508-003	I		06/15/03	06/24/03	MCM	Iodine 129 in Soil
			7508-003	NI_L		06/06/03	06/24/03	MCM	Nickel 63 in Soil
			7508-003	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-003	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-003	TC		06/20/03	06/24/03	MCM	Technetium 99 in Soil
			7508-003	TH	A1	07/08/03	07/14/03	MCM	Thorium, Isotopic in Soil
R305021-04	B16W87		7508-004	С		06/13/03	06/24/03	МСМ	Carbon 14 in Soil
05/06/03	216-A-37 (C4106)	SOLID	7508-004	Н		06/15/03	06/24/03	MCM	Tritium in Soil
05/08/03	F03-006-70 F03-00	06	7508-004	I		06/16/03	06/24/03	MCM	Iodine 129 in Soil
			7508-004	NI_L		06/06/03	06/24/03	MCM	Nickel 63 in Soil
			7508-004	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-004	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-004	TC		06/23/03	06/24/03	MCM	Technetium 99 in Soil
			7508-004	TH	A1	07/08/03	07/14/03	MCM	Thorium, Isotopic in Soil

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LWS</u>

Version <u>3.06</u>

Report date <u>07/14/03</u>

SDG 7508 Contact <u>Melissa C. Mannion</u>

WORK SUMMARY, cont.

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2195</u>

LAB SAMPLE	CLIENT SAMPLE ID									
COLLECTED RECEIVED	LOCATION CUSTODY SAF		TRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	ву	METHOD
							04.447.407	04 (04 (07		
305021-05	B16W88			7508-005	C 		06/13/03	06/24/03	MCM	Carbon 14 in Soil
05/07/03	216-A-37 (C4106)		LID	7508-005	H		06/15/03	06/24/03	MCM	Tritium in Soil
05/09/03	F03-006-71 F03-	006		7508-005	I		06/16/03	06/24/03	MCM	Iodine 129 in Soil
				7508-005	NI_L		06/07/03	06/24/03	MCM	Nickel 63 in Soil
				7508-005	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
				7508-005	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
				7508-005	TC		06/22/03	06/24/03	MCM	Technetium 99 in Soil
				7508-005	TH 	A1	07/08/03	07/14/03	MCM	Thorium, Isotopic in Soil
305021-06	Lab Control Sample			7508-006	С		06/13/03	06/24/03	MCM	Carbon 14 in Soil
		SOL	LID	7508-006	Н		06/15/03	06/24/03	MCM	Trîtium in Soil
	F03-	006		7508-006	I		06/17/03	06/24/03	MCM	Iodine 129 in Soil
				7508-006	NI_L		06/07/03	06/24/03	MCM	Nickel 63 in Soil
				7508-006	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
				7508-006	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
				7508-006	TC		06/20/03	06/24/03	MCM	Technetium 99 in Soil
305021-07	Method Blank			7508-007	С		06/13/03	06/24/03	мсм	Carbon 14 in Soil
		SOL	LID	7508-007	Н		06/15/03	06/24/03	MCM	Tritium in Soil
	F03-	006		7508-007	1		06/18/03	06/24/03	MCM	Iodine 129 in Soil
				7508-007	NI_L		06/07/03	06/24/03	MCM	Nickel 63 in Soil
				7508-007	NP.		06/10/03	06/24/03	MCM	Neptunium in Soil
				7508-007	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
	•			7508-007	TC		06/23/03	06/24/03	MCM	Technetium 99 in Soil
305021-08	Duplicate (R305021-0	4)		7508-008	С		06/13/03	06/24/03	MCM	Carbon 14 in Soil
05/06/03	216-A-37 (C4106)	SOL	LID	7508-008	н		06/15/03	06/24/03	MCM	Tritium in Soil
05/08/03	F03-	006		7508-008	I		06/19/03	06/24/03	MCM	Iodine 129 in Soil
				7508-008	NI L		06/07/03	06/24/03	MCM	Nickel 63 in Soil
				7508-008	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
				7508-008	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
				7508-008	TC		06/23/03	06/24/03	MCM	Technetium 99 in Soil
305021-09 05/06/03 05/08/03	Spike (R305021-04) 216-A-37 (C4106) F03-	SOL	LID	7508-009	н		06/15/03	06/24/03	MCM	Tritium in Soil

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SDG <u>7508</u> Contact <u>Melissa C. Mannion</u>

WORK SUMMARY, cont.

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2195</u>

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY SAF No	MATRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
R305021-10	Lab Control Sample F03-006	SOLID	7508-010	тн		07/04/03	07/14/03	мсм	Thorium, Isotopic in Soil
R305021-11	Method Blank	SOLID	7508-011	TH		07/09/03	07/14/03	мсм	Thorium, Isotopic in Soil
R305021-12 05/06/03 05/08/03	Duplicate (R305021-04) 216-A-37 (C4106) F03-006	SOLID	7508-012	TH		07/04/03	07/14/03	MCM	Thorium, Isotopic in Soil

TEST	SAF No	COUNTS	OF TESTS BY SAM	CLIENT MORE	RE BLANK	LCS	DUP SPIKE	TOTAL
С	F03-006	Carbon 14 in Soil	C14_COX_LSC	5	1	1	1	8
Н	F03-006	Tritium in Soil	906.0_H3_LSC	5	1	1	1 1	9
1	F03-006	Iodine 129 in Soil	I129_SEP_LEPS_GS	5	1	1	1	8
NI_L	F03-006	Nickel 63 in Soil	NI63_LSC	5	1	1	1	8
NP	F03-006	Neptunium in Soil	NP237_LLE_PLATE_AEA	5	1	1	1	8
SR	F03-006	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	5	1	1	1	8
TC	F03-006	Technetium 99 in Soil	TC99_TR_SEP_LSC	5	1	1	1	8
TH	F03-006	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	5	1	1	1	8
TOTALS				40	8	8	8 1	65

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Version <u>Ver 1.0</u>

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Version <u>3.06</u>

Report date <u>07/14/03</u>

7508-007

METHOD BLANK

Method Blank

		7508 Melissa C. Mannion	Client/Case no Contract	SDG H2195
ļ	Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	 SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.077	0.17	0.28	400	ប	н
Carbon 14	14762-75-5	1.37	1.9	3.1	50	U	C
Nickel 63	13981-37-8	-0.966	1.3	2.2	30	U	NI L
Total Strontium	SR-RAD	-0.091	0.15	0.33	1.0	U	SR
Technetium 99	14133-76-7	0.108	0.30	0.58	15	U	TC
Neptunium 237	13994-20-2	0	0.080	0.12	1.0	ਧ	NP
Iodine 129	15046-84 - 1	0.164	0.26	0.58	2.0	ט	I

200-PW-2/200-PW-4 OU-Borehole Soil

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7508-011

METHOD BLANK

Method Blank

1	7508 Melissa C. Mannion	Client/Case no Contract	 SDG H2195
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	 SOLID

ANALYTE	ANALYTE CAS NO		RESULT 2σ ERR pCi/g (COUNT)		RDL pCi/g	QUALI- FIERS	Test	
Thorium 228	14274-82-9	0.063	0.084	0.16		ט	TH	
Thorium 230	14269-63-7	0.104	0.12	0.20	1.0	ប	TH	
Thorium 232	TH-232	0.021	0.042	0.16	1.0	ប	TH	

200-PW-2/200-PW-4 OU-Borehole Soil

QC-BLANK 45048

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7508-006

LAB CONTROL SAMPLE

Lab Control Sample

SDG <u>7508</u>	Client/Case no <u>Hanford</u> <u>SDG H2195</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>
Lab sample id <u>R305021-06</u> Dept sample id <u>7508-006</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>F03-006</u>

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI~ FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	13.3	0.43	0.27	400		Н	13.8	0.55	96	84-116	80-120
Carbon 14	1830	19	4.5	50		С	1980	79	92	85-115	80-120
Nickel 63	257	4.5	2.1	30		NI_L	274	11	94	84-116	80-120
Total Strontium	23.2	1.1	0.35	1.0		SR	22.1	0.88	105	82-118	80-120
Technetium 99	131	2.7	0.65	15		TC	120	4.8	109	82-118	80-120
Neptunium 237	18.6	1.8	0.11	1.0		NP	21.8	0.87	85	85-115	80-120
Iodine 129	138	0.92	1.0	2.0		1	127	5.1	109	83-117	80-120

200-PW-2/200-PW-4 OU-Borehole Soil

QC-LCS #44724		

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Report date <u>07/14/03</u>

7508-010

LAB CONTROL SAMPLE

Lab Control Sample

SDG <u>7508</u>	Client/Case no <u>Hanford</u> <u>SDG H2195</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>
Lab sample id <u>R305021-10</u> Dept sample id <u>7508-010</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST		2σ ERR pCi/g		3σ LMTS (TOTAL)	
Thorium 230	41.8	3.5	0.24	1.0		TH	40.8	1.6	102	84-116	80-120

200-PW-2/200-PW-4 OU-Borehole Soil

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7508-008

DUPLICATE

B16W87

SDG 7508 Contact Melissa C. Mannion		Client/Case no <u>Hanford</u> <u>SDG H2195</u> Contract <u>No. 630</u>
DUPLICATE	ORIGINAL	
Lab sample id <u>R305021-08</u>	Lab sample id <u>R305021-04</u>	Client sample id <u>B16W87</u>
Dept sample id 7508-008	Dept sample id <u>7508-004</u>	Location/Matrix 216-A-37 (C4106) SOLID
	Received <u>05/08/03</u>	Collected/Weight <u>05/06/03 09:45</u> <u>178.8 g</u>
% solids <u>97.6</u>	% solids <u>97.6</u>	Custody/SAF No <u>F03-006-70</u> <u>F03-006</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- fiers	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD	30 PROT
Tritium	86.7	0.88	0.18	400	-	Н	79.6	0.80	0.17	- ",	9	21
Carbon 14	1.00	1.8	3.0	50	U	С	0.420	1.7	2.9	U	-	
Nickel 63	-0.501	1.4	2.4	30	U	NI_L	-0.472	1.5	2.6	U	-	
Total Strontium	0.050	0.20	0.39	1.0	U	SR	0.091	0.16	0.31	U	-	
Technetium 99	0.042	0.19	0.52	15	U	TC	0.135	0.32	0.60	U	-	
Neptunium 237	0	0.089	0.13	1.0	U	NP	0	0.075	0.11	U	-	
Iodine 129	0.022	0.62	1.4	2.0	U	ı	-0.355	0.75	1.7	U	-	

200-PW-2/200-PW-4 OU-Borehole Soil

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7508-012

DUPLICATE

B16₩87

SDG 7508 Contact Melissa C. Mannion		Client/Case no <u>Hanford</u> <u>SDG H2195</u> Contract <u>No. 630</u>
DUPLICATE	ORIGINAL	
Lab sample id R305021-12	Lab sample id <u>R305021-04</u>	Client sample id <u>B16W87</u>
Dept sample id 7508-012	Dept sample id <u>7508-004</u>	Location/Matrix 216-A-37 (C4106) SOLID
	Received <u>05/08/03</u>	Collected/Weight 05/06/03 09:45 178.8 g
% solids <u>97.6</u>	% solids <u>97.6</u>	Custody/SAF No <u>F03-006-70</u> <u>F03-006</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCî/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- RPD FIERS %	3σ PROT
Thorium 228	0.441	0.23	0.18			TH	0.517	0.32	0.30	16	124
Thorium 230	0.602	0.23	0.22	1.0		TH	0.474	0.32	0.30	24	110
Thorium 232	0.416	0.19	0.18	1.0		TH	0.553	0.32	0.30	28	116

200-PW-2/200-PW-4 OU-Borehole Soil

QC-DUP#4A1	45049	

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SAMPLE DELIVERY GROUP H2195

7508-009

MATRIX SPIKE

B16W87

SDG <u>7508</u> Contact <u>Melissa C. Mannion</u>		Client/Case no <u>Hanford SDG H2195</u> Contract <u>No. 630</u>
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R305021-09</u>	Lab sample id <u>R305021-04</u>	Client sample id <u>B16W87</u>
Dept sample id <u>7508-009</u>	Dept sample id <u>7508-004</u>	Location/Matrix 216-A-37 (C4106) SOLID
	Received <u>05/08/03</u>	Collected/Weight <u>05/06/03 09:45</u> <u>178.8 g</u>
% solids <u>97.6</u>	% solids <u>97.6</u>	Custody/SAF No <u>F03-006-70</u> <u>F03-006</u>

ANALYTE			MDA pCi/g	RDL pCi/g	QUALI- FIERS			2σ ERR pCi/g			REC 3σ LMTS P % (TOTAL)	
Tritium	125	1.3	0.25	400	х	Н	54.1	2.2	79.6	0.80	84 58-142	60-140

200-PW-2/200-PW-4 OU-Borehole Soil

QC-MS#4 44727	

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7508-001

DATA SHEET

B16W84

1	7508 Melissa C. Mannion	Client/Case no Contract		G_H2195
1			216-A-37 (C4106) 04/30/03 09:00 132.3 g	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	175	1.8	0.26	400		н
Carbon 14	14762 -7 5-5	-0.040	1.7	2.9	50	U	C
Nickel 63	13981-37-8	-0.227	1.5	2.5	30	U	NI L
Total Strontium	SR-RAD	0.073	0.17	0.33	1.0	ប	sr
Technetium 99	14133-76-7	0.307	0.35	0.64	15	U	TC
Thorium 228	14274-82-9	0.354	0.17	0.16			TH
Thorium 230	14269-63-7	0.621	0.25	0.20	1.0		TH
Thorium 232	TH-232	0.373	0.17	0.16	1.0		TH
Neptunium 237	13994-20-2	0	0.066	0.099	1.0	Ū	NP
Iodine 129	15046-84-1	-0.084	0.56	1.3	2.0	ប	I

200-PW-2/200-PW-4 OU-Borehole Soil

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7508-002

DATA SHEET

B16W85

	7508 Melissa C. Mannion	Client/Case no Contract		SDG H2195
i			216-A-37 (C4106) 04/30/03 12:38 142.	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pC1/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	225	2.3	0.31	400		н
Carbon 14	14762-75-5	0.596	1.9	3.1	50	U	C
Nickel 63	13981-37-8	1.75	1.4	2.4	30	U	NI L
Total Strontium	SR-RAD	0.023	0.16	0.33	1.0	U	SR
Technetium 99	14133-76-7	0.170	0.30	0.55	15	U	TC
Thorium 228	14274-82-9	0.480	0.19	0.14			TH
Thorium 230	14269-63-7	0.587	0.26	0.31	1.0		TH
Thorium 232	TH-232	0.367	0.15	0.14	1.0		TH
Neptunium 237	13994-20-2	0.077	0.077	0.12	1.0	U	NP
Iodine 129	15046-84-1	-0.204	0.52	1.2	2.0	U	I

200-PW-2/200-PW-4 OU-Borehole Soil

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7508-003

DATA SHEET

B16W86

	7508 Melissa C. Mannion	Client/Case no Contract		SDG H2195
			216-A-37 (C4106) 05/05/03 09:00 150.	·· · · · · · ·

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	83,2	0.84	0.17	400	-	Н
Carbon 14	14762-75-5	-0.340	1.5	2.6	50	ប	C
Nickel 63	13981-37-8	-1.29	1.4	2.4	30	U	NI L
Total Strontium	SR-RAD	-0.004	0.15	0.32	1.0	U	SR
Technetium 99	14133-76-7	0.109	0.34	0.57	15	U	TC
Thorium 228	14274-82-9	0.664	0.35	0.27			TH
Thorium 230	14269-63-7	0.799	0.35	0.27	1.0		TH
Thorium 232	TH-232	0.382	0.21	0.27	1.0		TH
Neptunium 237	13994-20-2	0	0.082	0.12	1.0	ប	ΝP
Iodine 129	15046-84-1	-0.062	0.56	1.3	2.0	U	I

200-PW-2/200-PW-4 OU-Borehole Soil

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7508-004

DATA SHEET

B16W87

	7508 Melissa C. Mannion	Client/Case no Contract		SDG H2195
i			216-A-37 (C4106) 05/06/03 09:45 178.	-

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	79.6	0.80	0.17	400		Н
Carbon 14	14762-75-5	0.420	1.7	2.9	50	ប	C
Nickel 63	13981-37-8	-0.472	1.5	2.6	30	υ	NI L
Total Strontium	SR-RAD	0.091	0.16	0.31	1.0	ឋ	SR
Technetium 99	14133-76-7	0.135	0.32	0.60	15	ប	TC
Thorium 228	14274-82-9	0.517	0.32	0.30			TH
Thorium 230	14269-63-7	0.474	0.32	0.30	1.0		TH
Thorium 232	TH-232	0.553	0.32	0.30	1.0		TH
Neptunium 237	13994-20-2	0	0.075	0.11	1.0	ซ	NP
Todine 129	15046-84-1	-0.355	0.75	1.7	2.0	U	I

200-PW-2/200-PW-4 OU-Borehole Soil

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7508-005

DATA SHEET

B16W88

	7508 Melissa C. Mannion	Client/Case no Contract	
ł		Collected/Weight	B16W88 216-A-37 (C4106) SOLID 05/07/03 10:50 191.3 q F03-006-71 F03-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	44.0	0.58	0.16	400		Н
Carbon 14	14762-75-5	0.543	1.6	2.6	50	U	C
Nickel 63	13981-37-8	-0.101	1.4	2.4	30	ប	NI L
Total Strontium	SR-RAD	0.119	0.18	0.35	1.0	ប	SR
Technetium 99	14133-76-7	0.163	0.31	0.56	15	ប	TC
Thorium 228	14274-82-9	0.277	0.21	0.26			TH
Thorium 230	14269-63-7	0.447	0.28	0.26	1.0		TH
Thorium 232	TH-232	0.344	0.21	0.26	1.0		TH
Neptunium 237	13994-20-2	0	0.069	0.10	1.0	Ŭ	NP
Iodine 129	15046-84-1	-0.510	0.80	1.8	2.0	ប	I

200-PW-2/200-PW-4 OU-Borehole Soil

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SAMPLE DELIVERY GROUP H2195

Test	NP_	Mat	rix	SOLID	-
SDG	<u>7508</u>				
ontact	Melis	sa	c. :	Mannion	

LAB METHOD SUMMARY

NEPTUNIUM IN SOIL ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG_H2195

RESULTS

TAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	CLIENT SAMPLE ID	Neptunium 237.	
Preparation	batch 7060-157			
R305021-01	7508-001	B16W84	U	
R305021-02	7508-002	B16₩85	U	
R305021-03	7508-003	B16W86	บ	
R305021-04	7508-004	B16W87	U	
R305021-05	7508-005	B16W88	บ	
R305021-06	7508-006	LCS (QC ID=44724)	ok	
R305021-07	7508-007	BLK (QC ID=44725)	U	
R305021-08	7508-008	Duplicate (R305021-04)	- U	

METHOD PERFORMANCE

IAB SAMPLE ID	RAW SU		SAMPLE ID		MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %		COUNT	DRIFT KeV		PREPARED	ANAL- YZED	DETECTOR
		70/0 457	2				1 - 1 - 1		70/0		457	 				
Preparation	Datch		za prep	error :	5.0 % R		Lab 1	Noteboo		pg.				0444040	04.45	
R305021-01		B16W84			0.099	0.500			82		102		41	06/10/03	06/10	SS-005
R305021-02		B16W85			0.12	0.500			68		102		41	06/10/03	06/10	SS-006
R305021-03		B16W86			0.12	0.500			61		103		36	06/10/03	06/10	SS-008
R305021-04		B16W87			0.11	0.500			71		102		35	06/10/03	06/10	SS-009
R305021-05		B16W88			0.10	0.500			74		103		34	06/10/03	06/10	SS-010
R305021-06		LCS (Q	C ID=44724)	0.11	0.500			74		103			06/10/03	06/10	SS-011
R305021-07		BLK (Q	C ID=44725)	0.12	0.500			70		103			06/10/03	06/10	SS-013
R305021-08		Duplic	ate (R30502	21-04)	0.13	0.500			59		104		35	06/10/03	06/10	SS-015
		(0	C ID=44726;)												
Nominal valu	es and	limits fr	om method		1.0	0.500			20-10	5	100	 	180			

METHOD SUMMARIES Page 1 SUMMARY DATA SECTION Page 21

Lab id EBRLNE Protocol <u>Hanford</u> Version <u>Ver 1.0</u> Form DVD-LMS Version 3.06 Report date <u>07/14/03</u>

SAMPLE DELIVERY GROUP H2195

Test NP Matrix SOLID SDG 7508 Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H2195

ı			
	PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
		CP-060	Soil Preparation, rev 4
		CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	}	CP-930	Neptunium from Solids and Water by Extraction
			Chromatography, rev 0
		CP-008	Heavy Element Electroplating, rev 7
ı			

AVERAGES ± 2 SD MDA 0.11 ± 0.022 FOR 8 SAMPLES YIELD 70 ± 15

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Protocol Hanford Version <u>Ver 1.0</u> Form DVD-LMS Version 3.06 Report date <u>07/14/03</u>

Lab id EBRLNE

SAMPLE DELIVERY GROUP H2195

Test	<u>TH</u>	Mat	ri	SOLID	
SDG	7508				
Contact	Melis	sa	ε.	<u>Mannion</u>	

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG_H2195

RESULTS

SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230	
Preparation	batch 706	50-157			
R305021-01	A1	7508-001	B16W84	0.621	
R305021-02	A1	7508-002	B16W85	0.587	
R305021-03	A1	7508-003	B16W86	0.799	
R305021-04	A1	7508-004	816W87	0.474	
R305021-05	A1	7508-005	B16W88	0.447	
R305021-10		7508-010	LCS (QC ID=45047)	ok	
R305021-11		7508-011	BLK (QC ID=45048)	U	
R305021-12		7508-012	Duplicate (R305021-04)	ok	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW Test		CLIENT	SAMPLE	ID	MAX MDA pCi/g	ALIQ 9	PREP FAC	DILU- Tion	YIELD %	EFF %	COUNT	FWHM keV	 	PREPARED	ANAL - YZED	DETECTO
Preparation	batch	706	0-157	2σ pr	ep error	5.0 % R	eference	Lab	Noteboo	k 7060	pg.	157					
R305021-01		A1	B16W84			0.20	0.250			85		284		70	07/03/03	07/09	SS-028
R305021-02		A1	B16W85			0.31	0.250			98		284		70	07/03/03	07/09	SS-029
R305021-03		A1	B16W86			0.27	0.250			89		161		64	07/03/03	07/08	ss-028
R305021-04		A1	B16W87			0.30	0.250			80		162		63	07/03/03	07/08	ss-029
R305021-05		A1	B16W88			0.26	0.250			95		162		62	07/03/03	07/08	SS-042
R305021-10			LCS (QC	ID=450	47)	0.24	0.250			83		256			07/03/03	07/04	SS-059
R305021-11			BLK (QC	ID=450	48)	0.20	0.250			90		285			07/03/03	07/09	SS-042
R305021-12			•	te (R30 ID=450	5021-04) 49)	0.22	0.250			89		257		59	07/03/03	07/04	SS-062
Nominal valu	les an	d lii	mits fro	m metho	d	1.0	0.250			20-105	 j	150		 180		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2195

Test IH Matrix SOLID SDG 7508 Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL ALPHA SPECTROSCOPY

Hanford
No. 630
SDG H2195

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
J	CP-900	Thorium in Water and Dissolved Solid Samples by
		Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7
ļ		

AVERAGES ± 2 SD MDA <u>0.25</u> ± <u>0.085</u> YIELD 89 ± 12 FOR 8 SAMPLES

METHOD SUMMARIES Page 4 SUMMARY DATA SECTION Page 24

Lab id EBRLNE Protocol Hanford Version <u>Ver 1.0</u> Form <u>DVD-LMS</u> Version 3.06 Report date <u>07/14/03</u>

SAMPLE DELIVERY GROUP H2195

Test <u>SR</u> Matrix <u>SOLID</u>
SDG 7508

Contact <u>Melissa C. Mannion</u>

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2195

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	CLIENT SAMPLE ID	Total Strontium	
Preparation	batch 7060-157			
R305021-01	7508-001	B16W84	U	
R305021-02	7508-002	B16W85	U	
R305021-03	7508-003	816W86	U	
R305021-04	7508-004	B16W87	U	
R305021-05	7508-005	B16W88	U	
R305021-06	7508-006	LCS (QC ID=44724)	ok	
R305021-07	7508-007	BLK (QC ID=44725)	U	
R305021-08	7508-008	Duplicate (R305021-04)	- U	

METHOD PERFORMANCE

LAB RA	J SUF-		MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS		ANAL-	
SAMPLE ID TES	ST FIX CLIENT	SAMPLE ID	pCi/g	9	FAC	TION	*	*	min	keV	KeV	HELD	PREPARED	YZED	DETECTO
Preparation ba	tch 7060-157	2σ prep error	10.0 %	Reference	Lab	Notebool	c 7060	pg.	157					•	
R305021-01	B16W84		0.33	1.00			89		100			40	06/09/03	06/09	GRB-201
R305021-02	B16W85		0.33	1.00			84		100			40	06/09/03	06/09	GRB-202
R305021-03	B16W86		0.32	1.00		•	84		100			35	06/09/03	06/09	GRB-203
R305021-04	B16W87		0.31	1.00			90		100			34	06/09/03	06/09	GRB-204
R305021-05	B16W88		0.35	1.00			82		100			33	06/09/03	06/09	GRB-207
R305021-06	LCS (QC	ID=44724)	0.35	1.00			77		72				06/09/03	06/09	GRB-223
R305021-07	BLK (QC	ID=44725)	0.33	1.00			77		116				06/09/03	06/09	GRB-232
R305021-08	•	te (R305021-04) ID=44726)	0.39	1.00			86		100			34	06/09/03	06/09	GRB-224
Nominal values	and limits fro	m method	1.0	1.00			30-10	5	100			180	·		

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2195

Test	<u>sr</u>	Matrix	SOLID	
SDG	<u>7508</u>			
ontact	Melio	sa C. i	Mannion	

LAB METHOD SUMMARY, cont. TOTAL STRONTIUM IN SOIL BETA COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H2195

PROCEDURES REFERENCE SRIOT_SEP_PRECIP_GPC CP-060 Soil Preparation, rev 4 CP-071 Soil Dissolution, > 1.0g Aliquot, rev 2 Strontium in Solids, rev 1 CP-381

MDA <u>0.34</u> ± <u>0.049</u> AVERAGES ± 2 SD FOR 8 SAMPLES YIELD 84 ± 10

METHOD SUMMARIES Page 6 SUMMARY DATA SECTION Page 26

SAMPLE DELIVERY GROUP H2195

Test	TC_	Mat	rix	SOL ID
SDG	<u>7508</u>			
Contact	<u>Meli</u>	ssa	c.	<u>Mannion</u>

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOIL BETA COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H2195

RESULTS

SAMPLE ID	RAW SUF- TEST FIX PI	LANCHET	CLIENT SAMPLE ID	Technet 99	m 	
Preparation	batch 7060-	157				
R305021-01	75	508-001	B16W84	U		
R305021-02	75	508-002	B16W85	U		
R305021-03	7:	508-003	B16W86	U		
R305021-04	75	508-004	B16W87	U		
R305021-05	75	508-005	816W88	U		
R305021-06	75	508-006	LCS (QC ID=44724)	ok		
R305021-07	75	508-007	BLK (QC ID=44725)	U		
R305021-08	75	508-008	Duplicate (R305021-04)	-	l .	

	RAW SUF		SAMPLE ID		MDA pCi/		PREP FAC		YIELD		COUNT	DR I FT KeV		PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 70	60-157	2σ prep e	rror			Lab	Noteboo	k 7060	pq.	157	 -		<u> </u>		
R305021-01		B16W84	pp	•	0.6				83		50		51	06/17/03	06/20	GRB-201
R305021-02		B16W85			0.5	5 1.03			89		50		51	06/17/03	06/20	GRB-202
R305021-03	,	816W86			0.5	7 1.02			87		50		46	06/17/03	06/20	GRB-203
R305021-04		B16W87			0.6	0 1.02			84		50		48	06/17/03	06/23	GRB-217
R305021-05		B16W88			0.5	5 1.02			87		50		46	06/17/03	06/22	GRB-222
R305021-06		LCS (Q	C ID=44724)		0.6	5 1.00			90		50			06/17/03	06/20	GRB-208
R305021-07		BLK (Q	C ID=44725)		0.58	3 1.00			89		50			06/17/03	06/23	GRB-219
R305021-08		Duplica	ate (R305021	-04)	0.5	2 1.02			92		50		48	06/17/03	06/23	GR8-220
		(Q	C ID=44726)													
Nominal valu	-		· · · · · · · · · · · · · · · · · · ·		15	1.00			20-10		50	 	180			

METHOD SUMMARIES Page 7 SUMMARY DATA SECTION Page 27

Lab id EBRLNE Protocol Hanford Version Ver 1.0 Form <u>DVD-LMS</u> Version 3.06 Report date <u>07/14/03</u>

Test	TC Matrix SOLID
SDG	7508
Contact	Melissa C. Mannion

LAB METHOD SUMMARY, cont. TECHNETIUM 99 IN SOIL

BETA COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG_H2195

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-021	Preparation of Tc-99m Tracer, rev 2
	CP-002	Q.C. Preparation, rev 4
	CP-003	Addition of Carriers and Tracers, rev 5
	CP-542	Technetium-99 Purification (Soil) by Extraction
		Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 0.58 ± 0.089
FOR 8 SAMPLES YIELD 88 ± 6

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2195

Test	<u></u>	Matrix	SOLID	_
SDG	<u>7508</u>			
Contact	Melis	sa C.	Mannion	

LAB METHOD SUMMARY

IODINE 129 IN SOIL GAMMA SPECTROSCOPY

Client	Hanford	
Contract	No. 630	
Contract	SDG H2195	

RESULTS

RAW SUF-LAB Iodine 129 CLIENT SAMPLE ID SAMPLE ID TEST FIX PLANCHET Preparation batch 7060-157 B16W84 Ų R305021-01 7508-001 U B16W85 R305021-02 7508-002 7508-003 B16W86 U R305021-03 B16W87 U R305021-04 7508-004 R305021-05 7508-005 B16W88 U 7508-006 LCS (QC ID=44724) ok R305021-06 BLK (QC ID=44725) 7508-007 U R305021-07 7508-008 Duplicate (R305021-04) -R305021-08 2.0 Nominal values and limits from method RDLs (pCi/g)

200-PW-2/200-PW-4 OU-Borehole Soil

	RAW SUF- TEST FIX CLIENT	SAMPLE ID	MDA pCi/s	ALIQ 9	PREP FAC		YIELD %			FWHM keV		PREPARED	ANAL - YZED	DETECTO
Preparation	betch 7060-157	2ø prep error	10.0 %	Reference	Lab	Notebool	7060	pg.	157		 			
R305021-01	B16W84	, ,	1.3	1.01			44		1349		44	06/10/03	06/13	X\$PEC-004
R305021-02	B16₩85		1.2	1.00			46		1446		45	06/10/03	06/14	XSPEC-004
R305021-03	B16W86		1.3	1.00			47		1006		41	06/10/03	06/15	XSPEC-004
R305021-04	B16W87		. 1.7	1.02			48		603		41	06/10/03	06/16	XSPEC-004
R305021-05	B16₩88		1.8	1.00			38		1002		40	06/10/03	06/16	XSPEC-004
R305021-06	LCS (QC	ID=44724)	1.0	1.00			86		1801			06/10/03	06/17	XSPEC-004
R305021-07	BLK (QC	ID=44725)	0.58	1.00			91		859			06/10/03	06/18	XSPEC-004
R305021-08	•	te (R305021-04) : ID=44726)	1.4	1.02			47		657		44	06/10/03	06/19	XSPEC-004
Nominal value	es and limits fro	m method	2.0	1.00	<u> </u>		20-105	—— 5	300		 180			· · · · · · · · · · · · · · · · · · ·

PROCEDURES !	REFERENCE	I129_SEP_LEPS_GS
1	CP-024	Iodine-129, Sample Dissolution, rev 3
	CP-530	Iodine-129 Purification, rev 0

AVERAGES ± 2 SD MDA __1.3 _ ± __0.77 FOR 8 SAMPLES YIELD 56 ± 41

METHOD SUMMARIES Page 9 SUMMARY DATA SECTION Page 29

SAMPLE DELIVERY GROUP H2195

Test C Matrix SOLID

SDG 7508

Contact Melissa C. Mannion

LAB METHOD SUMMARY CARBON 14 IN SOIL

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2195

RESULTS

	SUF- T FIX PLANCHET	CLIENT SAMPLE ID	Carbon 14	
Preparation bat	ch 7060-157			
R305021-01	7508-001	B16W84	U	
R305021-02	7508-002	B16₩85	บ	
R305021-03	7508-003	B16W86	U	
R305021-04	7508-004	B16W87	U	
R305021-05	7508-005	B16W88	U	
R305021-06	7508-006	LCS (QC ID=44724)	ok	
R305021-07	7508-007	BLK (QC ID=44725)	u	
R305021-08	7508-008	Duplicate (R305021-04)	- U	

METHOD PERFORMANCE

200-PW-2/200-PW-4 OU-Borehole Soil

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPL	E ID		MDA pCi/s	ALIQ 9 g	PREP FAC	DILU-	YIELD %	EFF %		FWHM keV			PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	7060	-157	2σ	ргер	error	10.0 %	Reference	Lab	Notebool	7060	pg.	157						
R305021-01			B16W84				2.9	0.348			100		100			44	06/12/03	06/13	LSC-006
R305021-02			B16₩85				3.1	0.322			100		100			44	06/12/03	06/13	LSC-006
R305021-03			B16W86				2.6	0.378			100		100			39	06/12/03	06/13	LSC-006
R305021-04			816W87				2.9	0.338			100		100			38	06/12/03	06/13	LSC-006
R305021-05			B16W88				2.6	0.376			100		100			37	06/12/03	06/13	LSC-006
R305021-06			LCS (Q	C ID=4	4724)		4.5	0.322			100		46				06/12/03	06/13	LSC-006
R305021-07			BLK (Q	C ID=4	4725)		3.1	0.322			100		100				06/12/03	06/13	LSC-006
R305021-08			Duplica (Q	ate (Ri C ID=4			3.0	0.326			100		100			38	06/12/03	06/13	LSC-006
Nominat valu	ues an	d lim	its fr	om met	hod		50	0.322					50		••	180			

PROCEDURES	REFERENCE	C14_COX_LSC
	CP-251	Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD MDA 3.1 ± 1.2

FOR 8 SAMPLES YIELD 100 ± 0

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2195

Test	<u>H</u>	Mat	ri	SOLID	
SDG	<u>7508</u>				
Contact	<u>Melis</u>	sa	с.	Mannion	

LAB METHOD SUMMARY TRITIUM IN SOIL LIQUID SCINTILLATION COUNTING

Client <u>Hanford</u> Contract No. 630 Contract SDG H2195

RESULTS

	SUF- FIX PLANCHET	CLIENT SAMPLE ID	Tritiu	um
Preparation batc	h 7060-157		_	
R305021-01	7508-001	B16W84	175	
R305021-02	7508-002	B16W85	225	
R305021-03	7508-003	B16W86	83.2	
R305021-04	7508-004	B16W87	79.6	
R305021-05	7508-005	B16W88	44.0	
R305021-06	7508-006	LCS (QC ID=44724)	ok	
R305021-07	7508-007	BLK (QC ID=44725)	U	
R305021-08	7508-008	Duplicate (R305021-04)	ok	
R305021-09	7508-009	Spike (R305021-04)	ok	X

200-PW-2/200-PW-4 OU-Borehole Soil

	SUF- T FIX CLIENT SAMPLE ID	MDA pCi/g	ALIQ 9	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	 		PREPARED	ANAL- YZED	DETECTOR
Preparation bat	ch 7060-157 2σ prep error	10.0 %	Reference	Lab I	lotebool	k 7060	pg.	157					.
R305021-01	B16W84	0.26	20.7			51		52		45	06/13/03	06/14	LSC-005
R305021-02	B16W85	0.31	21.2			50		43		46	06/13/03	06/15	LSC-005
R305021-03	B16 W8 6	0.17	21.0			51		103		41	06/13/03	06/15	LSC-005
R305021-04	B16W87	0.17	21.5			53		106		40	06/13/03	06/15	LSC-005
R305021-05	B16W88	0.16	21.4			51		120		39	06/13/03	06/15	LSC-005
R305021-06	LCS (QC ID=44724)	0.27	20.0			33		120			06/13/03	06/15	LSC-005
R305021-07	BLK (QC ID=44725)	0.28	20.0			33		120			06/13/03	06/15	LSC-005
R305021-08	Duplicate (R305021-04) (QC ID=44726)	0 .18	21.3			50		104		40	06/13/03	06/15	LSC-005
R305021-09	Spike (R305021-04) (QC ID=44727)	0.25	21.7			35		101		40	06/13/03	06/15	LSC-005
Nominal values	and limits from method	400	20.0			<u>.</u>		25	 	180			

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Lab id EBRUNE Protocol <u>Hanford</u> Version Ver 1.0 Form DVD-LMS Version 3.06 Report date <u>07/14/03</u>

SAMPLE DELIVERY GROUP H2195

Test	<u>H</u>	Mat	rix	SOLID	_
SDG	<u>7508</u>				_
Contact	Melis	ssa	c. 1	Mannion	

LAB METHOD SUMMARY, cont.

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG_H2195

PROCEDURES REFERENCE 906.0_H3_LSC

CP-216

Tritium in Solid Samples by Azeotropic

Distillation, rev 6

AVERAGES ± 2 SD MDA 0.23 ± 0.11
FOR 9 SAMPLES YIELD 45 ± 17

METHOD SUMMARIES
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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>07/14/03</u>

SAMPLE DELIVERY GROUP H2195

Test NI L Matrix SOLID
SDG 7508
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client	Hanford				
Contract	No. 630				
Contract	SDG H2195				

RESULTS

LAB RAW SUF-SAMPLE ID TEST FIX PLANCHET

CLIENT SAMPLE ID

Nickel 63

Preparation batch 7060-157 B16W84 U 7508-001 R305021-01 R305021-02 7508-002 B16W85 U B16W86 U 7508-003 R305021-03 u R305021-04 7508-004 B16W87 U 7508-005 B16W88 R305021-05 R305021-06 7508-006 LCS (QC ID=44724) ok R305021-07 7508-007 BLK (QC ID=44725) 7508-008 Duplicate (R305021-04) R305021-08

Nominal values and limits from method 200-PW-2/200-PW-4 OU-Borehole Soil RDLs (pCi/g)

30

METHOD PERFORMANCE

LAB SAMPLE ID	RAW SUF- TEST FIX		SAMPLE ID	MDA pCi/g	ALIQ J 9	PREP FAC		YIELD %	EFF %	COUNT min		DRIFT KeV		PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 706	0-157	2σ prep erro	r 10.0 %	Reference	Lab I	Notebool	7060	pq.	157					·	
R305021-01		B16₩84	F : ,	2.5	0.500			86	, ,	100			37	06/06/03	06/06	LSC-006
R305021-02		B16W85		2.4	0.500			88		100			37	06/06/03	06/06	LSC-006
R305021-03		B16W86		2.4	0.500			90		100			32	06/06/03	06/06	LSC-006
R305021-04		B16W87		2.6	0.500			83		100			31	06/06/03	06/06	LSC-006
R305021-05		B16W88		2.4	0.500			86		100		·	31	06/06/03	06/07	LSC-006
R305021-06		LCS (Q	ID=44724)	2.1	0.500			97		100				06/06/03	06/07	LSC-006
R305021-07		BLK (QC	ID=44725)	2.2	0.500			97		100				06/06/03	06/07	LSC-006
R305021-08			ate (R305021-04 C ID=44726)	2.4	0.500			88		100			32	06/06/03	06/07	LSC-006
Nominal valu	ues and li	mits fro	om method	30	0.500			30-105	5	50	·		180			

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP #2195

Test NI L Matrix SOLID

SDG 7508

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

NICKEL 63 IN SOIL LIQUID SCINTILLATION COUNTING

Client	Kanford
Contract	No. 630
Contract	SDG H2195

PROCEDU	RES REFERENCE	N163_LSC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
Į	CP-431	Nickel-63 Purification, rev 5

AVERAGES ± 2 SD MDA 2.4 ± 0.32 FOR 8 SAMPLES YIELD 89 ± 10

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2195

SDG 7508
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REPORT GUIDE

Client	Hanford
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Case no	SDG_H2195

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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SAMPLE DELIVERY GROUP H2195

SDG 7508
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REPORT GUIDE

Client	Hanford	
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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SAMPLE DELIVERY GROUP H2195

SDG 7508
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REPORT GUIDE

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Case no	SDG	H2195	

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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SAMPLE DELIVERY GROUP H2195

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REPORT GUIDE

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Case no	SDG H2195

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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			630		
Case	no	SDG	H2195		

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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SAMPLE DELIVERY GROUP H2195

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Case no	SDG	H2195	-		

DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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SAMPLE DELIVERY GROUP H2195

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Case no <u>SDG H2195</u>

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:
 - 1. A fixed percentage specified in the protocol.

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SAMPLE DELIVERY GROUP H2195

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GUIDE, cont.

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DUPLICATE

- 2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.
- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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SAMPLE DELIVERY GROUP H2195

SDG 7508
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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits

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SAMPLE DELIVERY GROUP H2195

SDG 7508
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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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SAMPLE DELIVERY GROUP H2195

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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SDG 7508
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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Prepareation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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SAMPLE DELIVERY GROUP H2195

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GUIDE, cont.

Client <u>Hanford</u>
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METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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SAMPLE DELIVERY GROUP H2195

SDG 7508

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GUIDE, cont.

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METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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FH-Central Plateau	ı Project	CI	HAIN OF CUST	ODY/S	AMPLE	ANALY	YSIS	REOUEST	F03	-006-67	Page 1	of 1
Collector Johansen/Pope/Pfister		Compa	any Contact	Telephor	ne No.			Project Coordinator TRENT, SJ	Price Code	8N	Data Tur	naround
Project Designation 200-PW-2/200-PW-4 OU - Bor	rehole Soil Sampling		ing Location -A-37 (C4106); (72.5'-75			(750	8)	SAF No. F03-006	Air Quality		45 1	Days
Ice Chest No. ERC 9	<u>_</u>	Field 1	Logbook No. F-N-3361		COA 117504ES			Method of Shipmen Federal Express	t	<u></u>		<u></u>
Shipped To	eberline services (Formerly TMA) Offsite Property No.				9 24	4 9		Bill of Lading/Air l	Bill No. SEE	-05 P		
POSSIBLE SAMPLE HAZAR	Tra		Preservation	Cool 4C	Cool 4C	Cool 48	Non	e None				
TIE TO BIGNEO Special Handling and/or Storage			Type of Container	aG	aG	aG	aG	aG				
i -	one		No. of Container(s)	1	1	1	1	<u>'</u>			<u> </u>	
		•	Volume	120mL	60mI	120mL	60m	L 60mL		-		
·	SAMPLE ANALY	/SIS		Chromium Hex - 7196	NO2/NO3 - 353.2	Oil & Grease - 413.1	See item Speci Instruct	al l	Tie I			
Sample No.	Matrix *	Sample Date	Sample Time		1000							
B16W84	SOIL	4-30-0	3 0900	/			7	< X	Bilel	000		
					 		 			 	 	
					 	 -	 	_			 	
		-		 	 	 	 			 	1	
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SECTION Received by					ıne						Date I time	<u></u>
FINAL SAMPLE Disposal Me DISPOSITION	thod					Disp	osed By				Date/Time	

FH-Central Plateau Project			HAIN OF CUST	ODY/S	AMPLE	ANAL	YSIS	REQUEST		F03	-006-68	Page <u>l</u>	of <u>1</u>
Collector Johansen/Pope/Pfister		Comp	any Contact Hulstrom	Telephor 373-39	ne No.			Project Coordina TRENT, SJ	itor	Price Code	8N	Data Tur	
Project Designation 200-PW-2/200-PW-4 OU - B	orehole Soil Sampling	Sampl 216	ing Location -A-37 (C4106); (97.5'-10	007 SD6	42195	(750	8	SAF No. F03-006		Air Quality		45 J	Days
Y- Ob -4 No	20 99.010	724141	Logbook No. F-N-3361		COA 117504ES		 _	Method of Shipm Federal Express					
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POSSIBLE SAMPLE HAZA			J	1	Ť								
Radiosatra			Preservation	Cool 4C	Cool 4C	Cool 4C	Not	se None					
	BIL WEN	,	Type of Container	aG	aG	16	aC	aG a					
Special Handling and/or Storage			No. of Container(s)	1	1	1	1	1					
	. —		Volume	120mL	60mL	120mL	60n	nL 60mL		1			
	SAMPLE ANAI	.YSIS	<u>L</u>	Chromium Hex - 7196	NO2/NO3 -	Oil & Grease - 413.1	See item Spec Instruc	أأهد	•				
				1						Tilt	D.		
Sample No.	Matrix *	Sample Date		7									
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FINAL SAMPLE Disposal N DISPOSITION	fethod	···				Disp	osed By					Date/Time	

FH-Central Plates	u Project	CI	HAIN OF CUST	ODY/S	AMPLI	EANALY	YSIS	REQUEST		F03	3-006-69	Page 1	of <u>1</u>
Collector Johansen/Pope/Pfister		Compa	any Contact Huistrom	Telephor 373-39	ne No.			Project Coordin TRENT, SJ		rice Code	8N	Data Tur	ŀ
Project Designation 200-PW-2/200-PW-4 OU - B	orehole Soil Sampling	Sampl 216	ing Location -A-37 (C4106); (147.5'-1	507 HZ	195 (7508	1	SAF No. F03-006	A	ir Quality		45 1	Days
Ice Chest No.	01-019	Field 1	Logbook No. F-N-3361		COA 117504E	_ ,		Method of Ships Federal Expres					
Shipped To Offsite Property No.				8030	258	Bill of Lading/Air Bill No. SEE OSP							
POSSIBLE SAMPLE HAZA	RDS/REMARKS	<u></u>	Preservation	Cool 4C	Cool 4C	Cool 4C	None	None					
Special Handling and/or Storage Colycon No wan			Type of Container	aG	aG	29	aG	aG	······································				
			No. of Container(s)	1	1	1	1	1.					·
1	Vova		Volume	120mL	60mL	120mL	60m	L 60mL					
SAMPLE ANALYSIS				Chromium Hex - 7196	HO27/03-	Oil & Grease - 413.1	See item Speci Instruct	ù l			Tiero:		
Sample No.	Matrix *	Sample Date	Sample Time										
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CHAIN OF POSSESSIO	NO.	Sign/Prin	it Names		 	CIAL INSTI	L) Ne	L		<u> </u>	<u> </u>	Matrix *
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SECTION	·				·- <u>-</u> -		479					·	
FINAL SAMPLE Disposal N DISPOSITION	Aethod					Disp	osed By			·		Date/Time	

FH-Central Platea	u Project	CI	HAIN OF CUST	ODY/S	AMPL	E ANALY	YSIS	REQUEST		F03	-006-70	Page <u>1</u>	of <u>1</u>
Collector Johansen/Pope/Pfister		Compa	any Contact Hulstrom	Telephor 373-39	ne No.			Project Coordina TRENT, SJ	tor	. Code	8N	Data Tui	
Project Designation 200-PW-2/200-PW-4 OU - B	orehole Soil Sampling	Sampl 216	ing Location -A-37 (C4106); (197.5'-2	200') H	2195	(7508	7	SAF No. F03-006	Air	Quality		45 	Days ———
Ice Chest No.	01.021		Logbook No. F-N-3361		COA 117504E	\$10		Method of Shipm Federal Express					
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POSSIBLE SAMPLE HAZA	RDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 49	Non	e None					
To e V & Special Handling and/or S	BIGWDO		Type of Container	aG	aG	G	aG	aG					
Noc	_		No. of Container(s)	1	1	1	1	1				ļ	<u> </u>
	•		Volume	120mL	60mL	120mL	60m	L 60mL		i			
	SAMPLE ANAL	YSIS		Chromium Hex - 7196	NO2/103 353.2	Oil & Grease - 413.1	See item Speci Instruct						
				NS/	741°'					Tieto:	,		
Sample No.	Matrix *	Sample Date	Sample Time										
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												<u> </u>	<u> </u>
Relinquished By/Removed From Relinquished By/Removed From A 3 > Z 6 Relinquished By/Removed From Relinquished By/Removed From Relinguished By/Removed From	Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time	Received By/Stor	red in D 3728 5/10 red in D red in D	ate/Time 03 100 ate/Time 000 - 203 ate/Time	(I)	Technetium-99; Nickel-63; Ner	s to achie and dies Strontium ptunium-2	ve a detection limit of the least sempounds for n-89,90 — Total Sr; Iso 137	om WTPH D a	unabyois.	19c 41	122/03	Matrix * S-Soil SE-Sediment SO-Solid SI-Shudge W - Water O-Oil A-Air DS-Drum Solids DL-Drum Liquids
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FINAL SAMPLE Disposal M DISPOSITION	ethod				<u> </u>	Dispo	osed By				1	Date/Time	

FH-Central Platea	u Project	CI	IAIN OF CUST	ODY/S	SAMPI	LE ANAL	YSIS	REC	UEST		F03	-006-71	Page 1	of <u>1</u>
Collector Johansen/Pope/Pfister		Compa LC I	ny Contact Iulstrom	Telepho - 373-3	ne No. 1928			Projec TREN	ct Coordin T, SJ	ator	Price Code	8N	Data Tur	j
Project Designation 200-PW-2/200-PW-4 OU - Bo	orebole Soil Sampling	Sampli 216-	ng Location A-37 (C4106); (237.5'-2	40) H2	1195	(7508)		SAF N F03-00			Air Quality		45]	Days
Ice Chest No. SML-	600	Field I	ogbook No. -N-3361		COA 117504				od of Ships eral Expres					
Shipped To EBERLINE SERVICES (For	merly TMA)	Offsite	Property No.	7302	54		٠,	Bill o	f Lading/A	ir Bill N	0.			
POSSIBLE SAMPLE HAZA							}							
			Preservation	Cool 4C	Cool 44	C Cool 4C	No		None					
 Special Handling and/or S	torage		Type of Container	aG	aG	/G	a(aG				<u> </u>	
{			No. of Container(s)	1	1	1	1		1				<u> </u>	
	·		Volume	120mL	60mI	120mL	60z	nL	60mL					
				Chromium Hex - 7196	NO2/NO 353.2	1 4131	- See item Sper		Critium - H3					
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	5703 1440 Date/Time		3 372 \$ 570	ate/Time	40 1	29; Nickel-63; No	eptunium-	237	•				#	W = Water O=Oil
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FINAL SAMPLE Disposal M DISPOSITION	ethod					Disp	osed By						Dute/Time	

EBERLINE.

ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

Client:			Date/Time rece	ived 1000) c·c - c3
CoC N	o. FU3 00	6-67,68			
Contai	ner I.D. No. <u>ERC-9</u>	8- U(ORequested 1	AT (Days) 45	P.O. Received	Yes [] No []
			CTION		-
1.	Custody seals on shi	pping container intact	Yes[]	1 No[]	N/A []
2.	Custody seals on shi	pping container dated	_		N/A []
3.	Custody seals on sar	mple containers intact?	Yes [7 No []	N/A []
4.	Custody seals on sar	mple containers dated	& signed? Yes [C	No []	N/A []
5.	Packing material is:		Wet [Ĺ
6.	Number of samples i	n shipping container:	٠		
7.	Number of container	s per sample;	Or see	CoC)
8.	Paperwork agrees w	ith samples?		No[]	
9.	Samples have: Tape	[] Hazard labels [] Rad labels []	Appropriate sam	ole labels [
10.		od condition [L] Lea	_		
11.	Samples are: Preserv	ved [] Not preserve	ed [] Preservation	ve	
12.		lies:			
			·		
13.	Was P.M. notified o	f_any anomalies? Ye	s[] No[]	Date	
14.	Received by	m Cf	Date: <u>\$~\$~Q</u>	3Time:	100Q
Custom	or Cample		Customar Sample		
	ier Sample No. cpm	mR/hr wipe	Customer Sample No.		nR/hr wipe
B 1/.	W84 Z40	776			
-D1-07					
19191	W&C Z40	-018			
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ion Cha	mber Ser. No.	4011	Calibratio	n date	7-03
Alpha k	Meter Ser. No.		Calibratio	n date	~
Ť		99574		10	-12-03
Beta/Ga	imma Meter Ser. No.	<u>k_kU'_1</u>	Calibratio	II data	



ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

Client:	FLR	•	1	Date/Time recei	0011_bev	5-8	03
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			INSPECTI			,	
1,	•	on shipping cont		Yes [L	_	-	N/A [G
2.		on shipping cont			<i></i>		N/A [14
3.	·	on sample ∞ntal		Yes [N/A [GOT
4.	•	on sample contai	ners dated & s]	N/A [44
5.	Packing materia			\ Wet [] Dry []		
6.		ples in shipping		<u> </u>		,	
7.		tainers per samp		•			
8.	,	ees with samples			No [
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10.	•	In good conditio					í
111.		reserved [] /			'e		 [
12.	Describe any a	nomalies:					[
	, <u></u>						
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13.		fied of any anom	alies? Yes [] No[]	Date	110	
14.	Received by	Miz y		Date: > - D-0	Time:	<u> </u>	
	er Sample	- "		stomer Sample			
	No. c	pm mR/hr	wipe	No.	cpm	mR/hr	wipe
B16	WK CY		7 .				
							
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Ion Cha	mber Ser. No.			Calibration	n date		· · · · · · · · · · · · · · · · · · ·
							
Alpha M	leter Ser. No	No. 9957			n date		
Beta/Ga	mma Meter Ser.	No. 1727	٤) 	Calibration	date 12	-12-03	
Form SC	CP-01:2, 02-11-0	03		"over 50 y	rears of quality	ty nuclear	services"

EBERLINE

ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

Client:	FLR	Date/Time received	1(00)	5-8-93
CoC No	. F03-006-70			
Contain	er I.D. No.(-RC-UI-OZI Requested TA	T (Days) 45 P.O.	Received Ye	s[]No[]
	INSPECT			
1.	Custody seals on shipping container intact?	Yes [1	No[]	N/A []
2.	Custody seals on shipping container dated &	signed? Yes [No []	N/A []
з.	Custody seals on sample containers intact?	Yes [1	No []	N/A[]
4.	Custody seals on sample containers dated &	signed? Yes [1	No[]	N/A []
5.	Packing material is:	, Wet []	Dry [L]	
6.	Number of samples in shipping container:	ļ		
7.	Number of containers per sample:	Or see CoC)	
8.	Paperwork agrees with samples?	Yes [14	No[]	
9.	Samples have: Tape [] Hazard labels []	Rad labels [1] Appro	priate sample is	abels [I
10.	Samples are: In good condition [1/ Leaki	ng[]_Broken Cont	ainer [] Mi	ssing []
11.	Samples are: Preserved [] Not preserved	[V] Preservative		
12.	Describe any anomalies:		<u></u>	
1				
13.	Was P.M. notified of any anomalies? Yes	· ·		
14.	Received by Lux	Date: <u>5-8-03</u>	Time:	0
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ion Chan	nber Ser. No.	Calibration date		
Alpha M	eter Ser. No.	Calibration date)	
,	nma Meter Ser. No. 99574	Calibration date	12-12.	ण्ड
Form SC	P-01:2, 02-11-03	"over 50 years	of quality nucle	ear services"

EBERLINE

ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

Client:	FL	R		-	Date/T	ime receiv	ed	(00)	5_9	1	-03
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Conta	iner I.D. No.			Requested			O. Rec	ervea	105 [No	<u> </u>
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2. 3.	Custody se Custody se					Yes [U	_			1/A [1/A [-
4.	Custody se									1/A [•
5.	Packing ma		ripia cuilta	mers dated	or signed:	Wet[]		yı L	_	V/	1
6.	Number of		n shinnina	container [*]	- \	4495()	.	, (-,			
7.	Number of					(Or see C	oC		_ }		i
8.	Paperwork					Yes [1]					;
9.	Samples ha				l Rad lab		-		le label	s L	
10.	Samples are	-		_)
11.	Samples ar	_			· · · · ·					_	
12.	Describe an								·		
1	·		·						· · · · · · · · · · · · · · · · · · ·		
Ì			 			<u> </u>			·		
13.	Was P.M.	notified o	any anon	ralies? Y	es []	No [_]					
14.	Received by	1 / (m)	-0-		Date:	5-9-03	S Tin	าย:	1100)	
Custom	ier Sample				Custome	r Sample					
	No.	cpm	mR/hr	wipe	No		cpm	n	nR/hr	Wi	pe
											
											
		·							 ,	·	
ion Cha	amber Ser. No). <u> </u>			C	Calibration	date	<u></u>			
Alpha N	Meter Ser. No	,			c	Calibration	date	·			
Beta/Ga	amma Meter (Ser. No.	995	74		Calibration	date	12	-(2-0	3	<u> </u>



June 25, 2003

Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Avenue Richland, WA 99352

Reference:

P.O. #630

Eberline Services R3-05-021-7508, SDG H2195

Dear Mr. Trent:

Enclosed is the data report for five solid samples designated under SAF No. F03-006 received at Eberline Services on May 5, 8, and 9, 2003. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion Program Manager

Meline Mann

MCM

Enclosure: Data Package

Page 1 of 2

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2195 was composed of five solid (soil) samples designated under SAF No. F03-006 with a Project Designations of: 200-PW-2/200-PW-4 OU – Borehole Soil Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 lodine-129 Analyses

No problems were encountered during the course of the analyses.

2.7 Isotopic Thorium Analyses

There was Th-228 and Th-230 activity in the method blank. The Th-230 (1.05 pCi/g) activity was slightly above the RDL (1.0 pCi/g) and the Th-228 (0.672 pCi/g) activity was below the RDL (1.0 pCi/g) for thorium. The method blank is currently being recounted. There is Th activity in the client samples. No other problems were encountered during the course of the analyses.

2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

Case Narrative

Page 2 of 2

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Program Manager

6/25/3 Date

E B E R L I N E S E R V I C E S / R I C H M O N D SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2195

SUMMARY DATA SECTION

TABLE OF	СO	N T	E N	T S	
About this section	•	•	•	•	1
Sample Summaries	•	•	•		3
Prep Batch Summary	•	•		•	5
Work Summary					6
Method Blanks	•				9
Lab Control Samples	•		•		10
Duplicates	•		•	•	11
Matrix Spikes	•	•		•	12
Data Sheets	•	•			13
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End of Section	•	•		•	46

MelinaManni	
Prepared by	
Melin Mamm	
Reviewed by	

Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 06/25/03

Lab id EBRLNE

SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hani	ford	
Contract	No.	630	
Case no	SDG	H2195	

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

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SAMPLE DELIVERY GROUP H2195

SDG <u>7508</u> Contact <u>Melissa C. Mannion</u>

GUIDE, cont.

Client	Hani	Eord	
Contract	No.	630	
Case no	SDG	H2195	

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

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SAMPLE DELIVERY GROUP H2195

SDG 7508 Contact <u>Melissa C. Mannion</u>

LAB SAMPLE SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2195</u>

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R305021-01	B16W84	216-A-37 (C4106)	SOLID	F03-006	F03-006-67	04/30/03 09:00
R305021-02	B16W85	216-A-37 (C4106)	SOLID	F03-006	F03-006-68	04/30/03 12:38
R305021-03	B16W86	216-A-37 (C4106)	SOLID	F03-006	F03-006-69	05/05/03 09:00
R305021-04	B16W87	216-A-37 (C4106)	SOL ID	F03-006	F03-006-70	05/06/03 09:45
R305021-05	B16W88	216-A-37 (C4106)	SOLID	F03-006	F03-006-71	05/07/03 10:50
R305021-06	Lab Control Sample		SOLID	F03-006		
R305021-07	Method Blank		SOLID	F03-006		
R305021-08	Duplicate (R305021-04)	216-A-37 (C4106)	SOLID	F03-006		05/06/03 09:45
R305021-09	Spike (R305021-04)	216-A-37 (C4106)	SOLID	F03-006		05/06/03 09:45

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LS</u>

Version <u>3.06</u>

Report date <u>06/25/03</u>

SDG <u>7508</u> Contact <u>Melissa C. Mannion</u>

QC SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2195</u>

QC BATCH	CHAIN OF	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE Amount	BASIS AMOUNT	DAYS :		LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7508	F03-006-67	B16W84	SOLID	91.0	132.3 g		05/05/03	5	R305021-01	7508-001
	F03-006-68	B16W85	SOLID	90.5	142.8 g		05/05/03	5	R305021-02	7508-002
	F03-006-69	B16W86	SOL 1D	97.0	150,6 g		05/08/03	3	R305021-03	7508-003
	F03-006-70	B16W87	SOL 1D	97.6	178.8 g		05/08/03	2	R305021-04	7508-004
	F03-006-71	B16W88	SOLID	98.3	191.3 g		05/09/03	2	R305021-05	7508-005
		Method Blank	SOLID						R305021-07	7508-007
		Lab Control Sample	SOLID						R305021-06	7508-006
		Duplicate (R305021-04)	SOLID	97.6	178.8 g		05/08/03	2	R305021-08	7508-008
		Spike (R305021-04)	SOLID	97.6	178.8 g		05/08/03	2	R305021-09	7508-009

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SAMPLE DELIVERY GROUP H2195

SDG 7508 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2195</u>

			PREPARATION	ERROR			PLANCHETS ANALYZED				
TEST	MATRIX	METHOD	BATCH	2σ %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG MS/ORIG	FIERS
Alpha NP	Spectros SOLID	copy Neptunium in Soil	7060-157	5.0	5	•		1	1	1/1	
TH	SOLID	Thorium, Isotopic in Soil	7060-157	5.0	5			1	1	1/1	
Beta SR	Counting SOLID	Total Strontium in Soil	7060-157	10.0	5			1	1	1/1	
тс	SOLID	Technetium 99 in Soil	7060-157	10.0	5			1	1	1/1	
Gamma I	Spectros SOLID	copy Iodine 129 in Soil	7060-157	10.0	5			1	1	1/1	
Liqui C	d Scintil SOLID	lation Counting Carbon 14 in Soil	7060-157	10.0	5			1	1	1/1	
н	SOLID	Tritium in Soil	7060-157	10.0	5			1	1	1/1 1/1	Х
NI_L	SOLID	Nickel 63 in Soil	7060-157	10.0	5			1	1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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SDG <u>7508</u> Contact <u>Melissa C. Mannion</u>

LAB WORK SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2195</u>

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY SAF N	MATRIX	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	вү	METHOD
	B16W84		7508-001			06/13/03	06/24/03	MCM	Carbon 14 in Soil
R305021-01	216-A-37 (C4106)	SOLID	7508-001	Н		06/14/03	06/24/03	MCM	Tritium in Soil
04/30/03 05/05/03	F03-006-67 F03-0		7508-001	ī		06/13/03	06/24/03	MCM	Iodine 129 in Soil
05/05/05	F03-008-07 F03-0	00	7508-001	NI_L		06/06/03	06/24/03	MCM	Nickel 63 in Soil
			7508-001	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-001	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-001	TC		06/20/03	06/24/03	MCM	Technetium 99 in Soil
			7508-001	TH		06/10/03	06/24/03	MCM	Thorium, Isotopic in Soil
R305021-02	B16W85		7508-002	С		06/13/03	06/24/03	MCM	Carbon 14 in Soil
04/30/03	216-A-37 (C4106)	SOLID	7508-002	н		06/15/03	06/24/03	MCM	Tritium in Soil
05/05/03	F03-006-68 F03-0	06	7508-002	I		06/14/03	06/24/03	MCM	Iodine 129 in Soil
-			7508-002	NI_L		06/06/03	06/24/03	MCM	Nickel 63 in Soil
			7508-002	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-002	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-002	TC		06/20/03	06/24/03	MCM	Technetium 99 in Soil
			7508-002	TH		06/10/03	06/24/03	MCM	Thorium, Isotopic in Soil
R305021-03	B16W86		7508-003	С		06/13/03	06/24/03	MCM	Carbon 14 in Soil
05/05/03	216-A-37 (C4106)	SOLID	7508-003	H		06/15/03	06/24/03	MCM	Tritium in Soil
05/08/03	F03-006-69 F03-0	06	7508-003	1		06/15/03	06/24/03	MCM	Iodine 129 in Soil
			7508-003	NI_L		06/06/03	06/24/03	MCM	Nickel 63 in Soil
			7508-003	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-003	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-003	TC		06/20/03	06/24/03	MCM	Technetium 99 in Soil
			7508-003	TH		06/10/03	06/24/03	MCM	Thorium, Isotopic in Soil
R305021-04	B16W87		7508-004	С		06/13/03	06/24/03	мсм	Carbon 14 in Soil
05/06/03	216-A-37 (C4106)	SOLID	7508-004	H		06/15/03	06/24/03	MCM	Tritium in Soil
05/08/03	F03-006-70 F03-0	06	7508-004	I		06/16/03	06/24/03	MCM	Iodine 129 in Soil
			7508-004	NI_L		06/06/03	06/24/03	MCM	Nickel 63 in Soil
			7508-004	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-004	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-004	TC		06/23/03	06/24/03	MCM	Technetium 99 in Soil
			7508-004	TH		06/10/03	06/24/03	MCM	Thorium, Isotopic in Soil

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SDG <u>7508</u> Contact <u>Melissa C. Mannion</u>

WORK SUMMARY, cont.

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2195</u>

LAB SAMPLE	CLIENT SAMPLE ID				SUF-				
RECEIVED	LOCATION CUSTODY SAF No	MATRIX	PLANCHET	TEST		ANALYZED	REVIEWED	вү	METHOD
305021-05	B16W88		7508-005	С		06/13/03	06/24/03	MCM	Carbon 14 in Soil
05/07/03	216-A-37 (C4106)	SOLID	7508-005	Н		06/15/03	06/24/03	MCM	Tritium in Soil
05/09/03	F03-006-71 F03-006)	7508-005	I		06/16/03	06/24/03	MCM	Iodine 129 in Soil
			7508-005	NI_L		06/07/03	06/24/03	MCM	Nickel 63 in Soil
			7508-005	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-005	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-005	TC		06/22/03	06/24/03	MCM	Technetium 99 in Soil
			7508-005	TH		06/10/03	06/24/03	MCM	Thorium, Isotopic in Soil
R305021-06	Lab Control Sample		7508-006	С		06/13/03	06/24/03	MCM	Carbon 14 in Soil
		SOLID	7508-006	Н		06/15/03	06/24/03	MCM	Tritium in Soil
	F03-006	1	7508-006	I		06/17/03	06/24/03	MCM	Iodine 129 in Soil
			7508-006	NI_L		06/07/03	06/24/03	MCM	Nickel 63 in Soil
			7508-006	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-006	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-006	TC		06/20/03	06/24/03	MCM	Technetium 99 in Soil
			7508-006	TH		06/10/03	06/24/03	MCM	Thorium, Isotopic in Soil
305021-07	Method Blank		7508-007	c	_	06/13/03	06/24/03	MCM	Carbon 14 in Soil
		SOLID	7508-007	H		06/15/03	06/24/03	MCM	Tritium în Soil
	F03-006	1	7508-007	I		06/18/03	06/24/03	MCM	Iodine 129 in Soil
			7508-007	NI_L		06/07/03	06/24/03	MCM	Nickel 63 in Soil
			7508-007	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-007	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-007	TC		06/23/03	06/24/03	MCM	Technetium 99 in Soil
			7508-007	TH		06/10/03	06/24/03	MCM	Thorium, Isotopic in Soil
305021-08	Duplicate (R305021-04)		7508-008	С		06/13/03	06/24/03	мсм	Carbon 14 in Soil
05/06/03	216-A-37 (C4106)	SOLID	7508-008	Н		06/15/03	06/24/03	MCM	Tritium in Soil
05/08/03	F03-006)	7508-008	I		06/19/03	06/24/03	MCM	lodine 129 in Soil
			7508-008	NI_L		06/07/03	06/24/03	MCM	Nickel 63 in Soil
			7508-008	NP		06/10/03	06/24/03	MCM	Neptunium in Soil
			7508-008	SR		06/09/03	06/24/03	MCM	Total Strontium in Soil
			7508-008	TC		06/23/03	06/24/03	MCM	Technetium 99 in Soil
_			7508-008	TH		06/10/03	06/24/03	МСМ	Thorium, Isotopic in Soil
305021-09	Spike (R305021-04)		7508-009	Н		06/15/03	06/24/03	мсм	Tritium in Soil
05/06/03	216-A-37 (C4106)	SOLID							
05/08/03	F03-006	•							

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Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LWS</u>

Version <u>3.06</u>

Report date <u>06/25/03</u>

SDG	7508		
Contact	<u>Melissa</u>	c.	Mannion

WORK SUMMARY, cont.

Client	<u>Hanford</u>
Contract	No. 630
Case no	SDG H2195

TEST	SAF No	COUNTS METHOD	OF TESTS BY SAM	CLIENT MORE	RE BLANK	LCS	DUP SPIKE	TOTAL
С	F03-006	Carbon 14 in Soil	C14_COX_LSC	5	1	1	1	8
Н	F03-006	Tritium in Soil	906.0_H3_LSC	5	1	1	1 1	9
I	F03-006	Iodine 129 in Soil	I129_SEP_LEPS_GS	5	1	1	1	8
NI_L	F03-006	Nickel 63 in Soil	NI63_LSC	5	1	1	1	8
NP	F03-006	Neptunium in Soil	NP237_LLE_PLATE_AEA	5	1	1	1	8
SR	F03-006	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	5	1	1	1	8
TC	F03-006	Technetium 99 in Soil	TC99_TR_SEP_LSC	5	1	1	1	8
TH	F03-006	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	5	1	1	1	8
TOTALS				40	8	8	8 1	65

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Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

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Version <u>3.06</u>

Report date <u>06/25/03</u>

7508-007

METHOD BLANK

Method Blank

	7508 Melissa C. Mannion	Client/Case no Contract	 SDG_H2195
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	 SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.077	0.17	0.28	400	U	н
Carbon 14	14762-75-5	1.37	1.9	3.1	50	U	С
Nickel 63	13981-37-8	-0.966	1.3	2.2	30	U	NI L
Total Strontium	SR-RAD	-0.091	0.15	0.33	1.0	U	sr
Technetium 99	14133-76-7	0.108	0.30	0.58	15	ប	TC
Thorium 228	14274-82-9	0.672	0.39	0.37			TH
Thorium 230	14269-63-7	1.05	0.49	0.37	1.0		TH
Thorium 232	TH-232	0	0.096	0.37	1.0	U	TH
Neptunium 237	13994-20-2	0	0.080	0.12	1.0	ប	NP
Iodine 129	15046-84-1	0.164	0.26	0.58	2.0	υ	I

200-PW-2/200-PW-4 OU-Borehole Soil

QC-BLANK #44725

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7508-006

LAB CONTROL SAMPLE

Lab Control Sample

SDG <u>7508</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford SDG H2195</u> Contract <u>No. 630</u>
Lab sample id <u>R305021-06</u> Dept sample id <u>7508-006</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>F03-006</u>

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	13.3	0.43	0.27	400		н	13.8	0.55	96	84-116	80-120
Carbon 14	1830	19	4.5	50		С	1980	79	92	85-115	80-120
Nickel 63	257	4.5	2.1	30		NI_L	274	11	94	84-116	80-120
Total Strontium	23.2	1.1	0.35	1.0		SR	22.1	0.88	105	82-118	80-120
Technetium 99	131	2.7	0.65	15		TC	120	4.8	109	82-118	80-120
Thorium 230	43.4	4.5	0.30	1.0	В	TH	44.8	1.8	97	82-118	80-120
Neptunium 237	18.6	1.8	0.11	1.0		NP	21.8	0.87	85	85-115	80-120
Iodine 129	138	0.92	1.0	2.0		I	127	5.1	109	83-117	80-120

200-PW-2/200-PW-4 OU-Borehole Soil

c 4//77/					
3 #44/24					
	s #44724	s #44724	s #44724	s #44724	S #44724

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Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LCS</u>

Version <u>3.06</u>

Report date <u>06/25/03</u>

7508-008

DUPLICATE

B16W87

SDG 7508		Client/Case no <u>Hanford</u> <u>SDG H2195</u>
Contact <u>Melissa C. Mannion</u>		Contract No. 630
DUPLICATE	ORIGINAL	
Lab sample id <u>R305021-08</u>	Lab sample id <u>R305021-04</u>	Client sample id <u>B16W87</u>
Dept sample id <u>7508-008</u>	Dept sample id <u>7508-004</u>	Location/Matrix 216-A-37 (C4106) SOLID
	Received <u>05/08/03</u>	Collected/Weight <u>05/06/03 09:45 178.8 g</u>
% solids <u>97.6</u>	% solids <u>97.6</u>	Custody/SAF No <u>F03-006-70</u> <u>F03-006</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCî/g	QUALI- FIERS	RPD %	3 <i>σ</i> ΤΟΤ	PRO
Tritium	86.7	0.88	0.18	400		н	79.6	0.80	0.17		9	21	
Carbon 14	1.00	1.8	3.0	50	U	C	0.420	1.7	2.9	U	-		
Nickel 63	-0.501	1.4	2.4	30	U	NI_L	-0.472	1.5	2.6	U	_		
Total Strontium	0.050	0.20	0.39	1.0	U	SR	0.091	0.16	0.31	U	-		
Technetium 99	0.042	0.19	0.52	15	U	TC	0.135	0.32	0.60	U	-		
Thorium 228	0.609	0.35	0.33		В	TH	0.701	0.37	0.28	В	14	117	
Thorium 230	0.869	0.44	0.33	1.0	В	TH	1.33	0.46	0.35	В	42	88	
Thorium 232	0.652	0.35	0.33	1.0		TH	0.442	0.22	0.28		38	114	
Neptunium 237	0	0.089	0.13	1.0	U	NP	0	0.075	0.11	U	-		
Iodine 129	0.022	0.62	1.4	2.0	U ·	1	-0.355	0.75	1.7	U	-		

200-PW-2/200-PW-4 OU-Borehole Soil

QC-DUP#4 44726		
MC-DOF#4 44120		

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Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-DUP</u>

Version <u>3.06</u>

Report date <u>06/25/03</u>

SAMPLE DELIVERY GROUP H2195

7508-009

MATRIX SPIKE

B16W87

SDG <u>7508</u> Contact <u>Melissa</u> C.	Mannion	Client/Case no <u>Hanford SDG H2195</u> Contract <u>No. 630</u>
MATRIX SPI	CE ORIGINAL	
Lab sample id <u>R305021-09</u>	Lab sample id <u>R305021-04</u>	Client sample id <u>B16W87</u>
Dept sample id <u>7508-009</u>	Dept sample id <u>7508-004</u>	Location/Matrix 216-A-37 (C4106) SOLID
	Received <u>05/08/03</u>	Collected/Weight <u>05/06/03 09:45 </u>
% solids <u>97.6</u>	% solids <u>97.6</u>	Custody/SAF No <u>F03-006-70</u> <u>F03-006</u>

ANALYTE	••	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS				ORIGINAL pCi/g				PROTOCOL LIMITS
Tritium	125	1.3	0.25	400	х	H	54.1	2.2	79.6	0.80	84	58-142	60-140

200-PW-2/200-PW-4 OU-Borehole Soil

QC-MS#4 44727		

MATRIX SPIKES
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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-MS</u>

Version <u>3.06</u>

Report date <u>06/25/03</u>

EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP H2195

7508-001

DATA SHEET

B16W84

	7508 Melissa C. Mannion	Client/Case no Contract	
ſ		Client sample id Location/Matrix Collected/Weight Custody/SAF No	216-A-37 (C4106) SOLID 04/30/03 09:00 132.3 q

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	175	1.8	0.26	400	· · · · · · · · · · · · · · · · · · ·	н
Carbon 14	14762-75-5	-0.040	1.7	2.9	50	ប	C
Nickel 63	13981-37-8	-0.227	1.5	2.5	30	ΰ	NI L
Total Strontium	SR-RAD	0.073	0.17	0.33	1.0	ប	SR
Technetium 99	14133-76-7	0.307	0.35	0.64	15	υ	TC
Thorium 228	14274-82-9	0.476	0.30	0.35		В	TH
Thorium 230	14269-63-7	0.804	0.37	0.28	1.0	В	TH
Thorium 232	TH-232	0.219	0.15	0.28	1.0	ប	TH
Neptunium 237	13994-20-2	0	0.066	0.099	1.0	U	NP
Iodine 129	15046-84-1	-0.084	0.56	1.3	2.0	υ	I

200-PW-2/200-PW-4 OU-Borehole Soil

DATA SHEETS
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EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2195

7508-002

DATA SHEET

B16W85

7508 Melissa C. Mannion	Client/Case no Contract		SDG_H2195
		216-A-37 (C4106) 04/30/03 12:38 142.	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TKST
Tritium	10028-17-8	225	2.3	0.31	400		Н
Carbon 14	14762-75-5	0.596	1.9	3.1	50	ប	Ç
Nickel 63	13981-37-8	1.75_	1.4	2.4	30	U	NI L
Total Strontium	SR-RAD	0.023	0.16	0.33	1.0	ប	SR
Technetium 99	14133-76-7	0.170	0.30	0.55	15	υ	TC
Thorium 228	14274-82-9	0.345	0.31	0.37		υ	TH
Thorium 230	14269-63-7	0.689	0.31	0.29	1.0	В	TH
Thorium 232	TH-232	0.268	0.23	0.29	1.0	U	TH
Neptunium 237	13994-20-2	0.077	0.077	0.12	1.0	U	NP
Iodine 129	15046-84-1	-0.204	0.52	1.2	2.0	U	I

200-PW-2/200-PW-4 OU-Borehole Soil

DATA SHEETS
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SUMMARY DATA SECTION
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EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP H2195

7508-003

DATA SHEET

B16W86

7508 Melissa C. Mannion	Client/Case no Contract	
	Client sample id Location/Matrix Collected/Weight Custody/SAF No	216-A-37 (C4106) SOLID 05/05/03 09:00 150.6 g

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	83.2	0.84	0,17	400		Н
Carbon 14	14762-75-5	-0.340	1.5	2.6	50	U	C
Nickel 63	13981-37-8	-1.29	1.4	2.4	30	U	NI L
Total Strontium	SR-RAD	-0.004	0.15	0.32	1.0	ប	SR
Technetium 99	14133-76-7	0.109	0.34	0.57	15	Ū	TC
Thorium 228	14274-82-9	0.512	0.30	0.40		В	TH
Thorium 230	14269-63-7	0.256	0.22	0.35	1.0	ប	TH
Thorium 232	TH-232	0.438	0.22	0.28	1.0		TH
Neptunium 237	13994-20-2	0	0.082	0.12	1.0	υ	NP
Iodine 129	15046-84-1	-0.062	0.56	1.3	2.0	U	I

200-PW-2/200-PW-4 OU-Borehole Soil

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EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2195

7508-004

DATA SHEET

B16W87

t	7508 Melissa C. Mannion	Client/Case no Contract		SDG H2195
I.		Collected/Weight	B16W87 216-A-37 (C4106) 05/06/03 09:45 178. F03-006-70 F03-	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	79.6	0.80	0.17	400		Н
Carbon 14	14762-75-5	0.420	1.7	2.9	50	U	С
Nickel 63	13981-37-8	-0.472	1.5	2.6	30	ប	NI_L
Total Strontium	SR-RAD	0.091	0.16	0.31	1.0	U	SR
Technetium 99	14133-76-7	0.135	0.32	0.60	15	U	TC
Thorium 228	14274-82-9	0.701	0.37	0.28		В	TH
Thorium 230	14269-63-7	1.33	0.46	0.35	1.0	В	TH
Thorium 232	TH-232	0.442	0.22	0.28	1.0		TH
Neptunium 237	13994-20-2	0	0.075	0.11	1.0	υ	NP
Todine 129	15046-84-1	-0.355	0.75	1.7	2.0	U,	I

200-PW-2/200-PW-4 OU-Borehole Soil

DATA SHEETS
Page 4
SUMMARY DATA SECTION
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EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP H2195

7508-005

DATA SHEET

B16W88

1	7508 Melissa C. Mannion	Client/Case no Contract		SDG_H2195
1		Client sample id Location/Matrix Collected/Weight Custody/SAF No	216-A-37 (C4106) 05/07/03 10:50 191.	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	Test
Tritium	10028-17-8	44.0	0.58	0.16	400		Н
Carbon 14	14762-75-5	0.543	1.6	2.6	50	U	C
Nickel 63	13981-37-8	-0.101	1.4	2.4	30	U	NI L
Total Strontium	SR-RAD	0.119	0.18	0.35	1.0	ប	SR
Technetium 99	14133-76-7	0.163	0.31	0.56	15	ប	TC
Thorium 228	14274-82-9	0.577	0.39	0.37		В	TH
Thorium 230	14269-63-7	0.960	0.49	0.37	1.0	В	TH
Thorium 232	TH-232	0.672	0.39	0.37	1.0		TH
Neptunium 237	13994-20-2	0	0.069	0.10	1.0	U	NP
Iodine 129	15046-84-1	-0.510	0.80	1.8	2.0	U	I

200-PW-2/200-PW-4 OU-Borehole Soil

DATA SHEETS
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SUMMARY DATA SECTION
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SAMPLE DELIVERY GROUP H2195

Test	NP	Matri)	C <u>S</u> (OLID	
SDG	<u>7508</u>				
ontact	Melis	ssa C.	Mai	nnion	

LAB METHOD SUMMARY

NEPTUNIUM IN SOIL ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H2195

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	CLIENT SAMPLE ID	Neptunium 237	
Preparation	n batch 7060-157			
R305021-01	7508-001	B16W84	U	
R305021-02	7508-002	B16W85	U	
R305021-03	7508-003	B16W86	U	
R305021-04	7508-004	B16W87	U	
R305021-05	7508 -00 5	B16W88	υ	
R305021-06	7508-006	LCS (QC ID=44724)	ok	
R305021-07	7508-007	BLK (QC ID=44725)	U	
R305021-08	7508-008	Duplicate (R305021-04)	- U	

	RAW SUF- TEST FIX C	LIENT	SAMPLE	ID	MDA pCi/g	ALIQ g	PREP FAC		YIELD %			 DRIFT KeV		PREPARED	ANAL- YZED	DETECTO
Preparation	batch 7060-	157	2σ pr	eD error	5.0 % R	eference	Lab	Notebook	7060	pg.	157	 				······································
R305021-01		16W84				0.500			82		102		41	06/10/03	06/10	SS-005
R305021-02	В	16W85			0.12	0.500			68		102		41	06/10/03		ss-006
R305021-03	В	16W86			0.12	0.500			61		103		36	06/10/03	06/10	ss-008
R305021-04	В	16W87			0.11	0.500			71		102		35	06/10/03	06/10	ss-009
R305021-05	В	16¥88			0.10	0.500			74		103		34	06/10/03	06/10	ss-010
R305021-06	Ł	cs (QC	ID=447	24)	0.11	0.500			74		103			06/10/03	06/10	SS-011
R305021-07	В	LK (QC	ID=447	25)	0.12	0.500			70		103			06/10/03	06/10	ss-013
R305021-08	D	•	te (R30! ID=447	5021-04) 26)	0.13	0.500			59		104		35	06/10/03	06/10	SS-015
Nominal valu	es and limi	ts fro	m metho	 1	1.0	0,500			20-10	 5	100	 	180			

METHOD SUMMARIES Page 1 SUMMARY DATA SECTION Page 18

SAMPLE DELIVERY GROUP H2195

Test NP Matrix SOLID SDG 7508 Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL ALPHA SPECTROSCOPY

Client <u>Hanford</u> Contract No. 630 Contract SDG H2195

PROCEDURES	REFERENCE CP-060	NP237_LLE_PLATE_AEA Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-930	Neptunium from Solids and Water by Extraction
		Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 0.11 ± 0.022 FOR 8 SAMPLES

METHOD SUMMARIES Page 2 SUMMARY DATA SECTION Page 19

Lab id EBRLNE Protocol Hanford Version <u>Ver 1.0</u> Form <u>DVD-LMS</u> Version 3.06 Report date <u>06/25/03</u>

SAMPLE DELIVERY GROUP H2195

Test TH Matrix SOLID
SDG 7508
Contact Melissa C. Mannion

LAB METHOD SUMMARY THORIUM, ISOTOPIC IN SOIL

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2195

RESULTS

RAW SUF-LAB Thorium 230 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Preparation batch 7060-157 0.804 R305021-01 7508-001 B16W84 0.689 7508-002 B16W85 R305021-02 R305021-03 7508-003 B16W86 U 7508-004 B16W87 1.33 R305021-04 R305021-05 7508-005 B16W88 0.960 R305021-06 7508-006 LCS (QC ID=44724) ok 1.05 7508-007 BLK (QC ID=44725) R305021-07 7508-008 R305021-08 Duplicate (R305021-04) ok

Nominal values and limits from method

RDLs (pCi/g)

1.0

200-PW-2/200-PW-4 OU-Borehole Soil

METHOD PERFORMANCE

LAB SAMPLE ID	RAW Test		CLIENT	SAMPLE	ID	MAX M pCi/		PREP FAC	DILU- Tion	YIELD %	EFF %				PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	706	0-157	2σ p	rep error	5.0 %	Reference	Lab	Notebool	7060	pg.	157					
R305021-01			B16W84			0.2	0.250			92		161		41	06/10/03	06/10	ss-039
R305021-02			B16W85			0.29	0.250			86		161		41	06/10/03	06/10	SS-040
R305021-03			B16W86			0.3	0.250			90		161		36	06/10/03	06/10	SS-041
R305021-04			B16W87			0.3	0.250			87		162		35	06/10/03	06/10	SS-043
R305021-05			B16W88			0.3	7 0.250			64		162		34	06/10/03	06/10	SS-044
R305021-06			LCS (Q	C ID=44	724)	0.30	0.250			82		162			06/10/03	06/10	SS-045
R305021-07			BLK (Q	C ID=44	725)	0.37	0.250			68		162			06/10/03	06/10	SS-047
R305021-08			•	ete (R3 C ID=44	05021-04) 726)	0.33	0.250			77		162		35	06/10/03	06/10	SS-048
Nominal valu	ues an	d lir	nits fr	om meth	od	1.0	0.250			20-10	5	150		180			

METHOD SUMMARIES
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SUMMARY DATA SECTION
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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>06/25/03</u>

SAMPLE DELIVERY GROUP H2195

Test TH Matrix SOLID SDG <u>7508</u> Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL ALPHA SPECTROSCOPY

Client	<u>Hanford</u>
Contract	No. 630
Contract	SDG_H2195

	PROCEDURES	REFERENCE CP-060	THISO_IE_PLATE_AEA Soil Preparation, rev 4
ĺ		CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
ı		CP-900	Thorium in Water and Dissolved Solid Samples by
			Extraction Chromatography, rev 1
		CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 0.33 ± 0.072 FOR 8 SAMPLES YIELD 81 ± 21

METHOD SUMMARIES Page 4 SUMMARY DATA SECTION Page 21

Lab id EBRLNE Protocol <u>Hanford</u> Version <u>Ver 1.0</u> Form <u>DVD-LMS</u> Version 3.06 Report date 06/25/03

SAMPLE DELIVERY GROUP H2195

Test SR Matrix SOLID SDG 7508 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOIL BETA COUNTING

Client <u>Hanford</u> Contract No. 630 Contract SDG H2195

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	CLIENT SAMPLE ID	Total Strontium	
Preparation	n batch 7060-157			
R305021-01	7508-001	B16W84	U	
R305021-02	7508-002	B16W85	U	
R305021-03	7508-003	B16W86	U	
R305021-04	7508-004	B16W87	U	
R305021-05	7508-005	B16W88	U	
R305021-06	7508-006	LCS (QC ID=44724)	ok	
R305021-07	7508-007	BLK (QC ID=44725)	U	
R305021-08	7508-008	Duplicate (R305021-04)	- U	

	RAW SUF- TEST FIX CLIENT	SAMPLE ID	MDA pCi/g	ALIQ 9	PREP FAC		YIELD %	EFF %	COUNT min		DRIFT KeV		PREPARED	ANAL- YZED	DETECTOR
Preparation	batch 7060-157	2σ prep error	10.0 %	Reference	Lab !	Notebool	k 7060	pg.	157						
R305021-01	B16W84	• •	0.33	1.00			89	• -	100			40	06/09/03	06/09	GRB-201
R305021-02	B16W85		0.33	1.00			84		100			40	06/09/03	06/09	GRB-202
R305021-03	B16W86		0.32	1.00			84		100			35	06/09/03	06/09	GRB-203
R305021-04	B16W87		0.31	1.00			90		100			34	06/09/03	06/09	GRB-204
R305021-05	B16W88		0.35	1.00			82		100			33	06/09/03	06/09	GRB-207
R305021-06	LCS (QC	ID=44724)	0.35	1.00			77		72				06/09/03	06/09	GRB-223
R305021-07	BLK (QC	1D=44725)	0.33	1.00			77		116				06/09/03	06/09	GRB-232
R305021-08	Duplica	ite (R305021-04)	0.39	1.00			86		100			34	06/09/03	06/09	GRB-224
	(90	: ID=44726)													
Nominal valu	es and limits fro	om method	1.0	1.00			30-10	5	100	•		180			

METHOD SUMMARIES Page 5 SUMMARY DATA SECTION Page 22

SAMPLE DELIVERY GROUP H2195

Test SR Matrix SOLID SDG <u>7508</u> Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL BETA COUNTING

Client <u>Hanford</u> Contract No. 630 Contract SDG H2195

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC Soil Preparation, rev 4 CP-060 Soil Dissolution, > 1.0g Aliquot, rev 2 Strontium in Solids, rev 1 CP-071 CP-381

AVERAGES ± 2 SD MDA _ 0.34 ± _ 0.049 FOR 8 SAMPLES YIELD __ 84 __ ± __10

METHOD SUMMARIES Page 6 SUMMARY DATA SECTION Page 23

SAMPLE DELIVERY GROUP H2195

Test TC Matrix SOLID
SDG 7508
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOIL BETA COUNTING Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2195</u>

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	CLIENT SAMPLE ID	Technetium 99	
Preparation	1 batch 7060-157			
R305021-01	7508-001	B16W84	υ	
R305021-02	7508-002	B16W85	U	
R305021-03	7508-003	B16W86	U	
R305021-04	7508-004	B16W87	U	
R305021-05	7508-005	B16W88	U	
R305021-06	7508-006	LCS (QC ID=44724)	ok	
R305021-07	7508-007	BLK (QC ID=44725)	U	
R305021-08	7508-008	Duplicate (R305021-04)	- U	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW S		ENT	SAMPLE	īn	MDA pCi/			DILU-	YIELD		COUNT		DRIFT KeV		PREPARED	ANAL- YZED	DETECTOR
SAPILE 10	1031 1		LNI	3AHIT EL					1100			#II.	VC.A	NC V	HELD	FREFARED	IZED	DETECTOR
Preparation	batch	7060-1	7	2σ pr	ep error	10.0 %	Referenc	e Lab	Noteboo	k 7060	pg.	157						
R305021-01		B16	W84			0.6	4 1.02			83		50			51	06/17/03	06/20	GRB-201
R305021-02		81	58W5			0.5	5 1.03			89		50			51	06/17/03	06/20	GRB-202
R305021-03		B16	68W			0.5	7 1.02			87		50			46	06/17/03	06/20	GRB-203
R305021-04		B16	W87			0.6	0 1.02			84		50			48	06/17/03	06/23	GRB-217
R305021-05		B16	88W			0.5	6 1.02			87		50			46	06/17/03	06/22	GRB-222
R305021-06		LC:	(Q(ID=447	24)	0.6	5 1.00			90		50				06/17/03	06/20	GRB-208
R305021-07		BLI	(Q0	ID=447	25)	0.5	8 1.00			89		50				06/17/03	06/23	GRB-219
R305021-08		Duj	olica	ite (R30	5021-04)	0.5	2 1.02			92		50			48	06/17/03	06/23	GRB-220
			(90	ID=447	26)													
Nominal valu	ues and	limit:	fro	m metho	d	15	1.00			20-10	5	50			180			

METHOD SUMMARIES
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SAMPLE DELIVERY GROUP H2195

Test	TC Matrix SOLID
SDG	7508
Contact	Melissa C. Mannion

LAB METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL BETA COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H2195

	PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
		CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
		CP-021	Preparation of Tc-99m Tracer, rev 2
		CP-002	Q.C. Preparation, rev 4
		CP-003	Addition of Carriers and Tracers, rev 5
	ı	CP-542	Technetium-99 Purification (Soil) by Extraction
			Chromatography, rev 2
		CP-008	Heavy Element Electroplating, rev 7
П			

AVERAGES ± 2 SD MDA <u>0.58</u> ± <u>0.089</u> FOR 8 SAMPLES YIELD 88 ± 6

METHOD SUMMARIES Page 8 SUMMARY DATA SECTION Page 25

Lab id EBRLNE Protocol <u>H</u>anford Version Ver 1.0 Form DVD-LMS Version 3.06 Report date <u>06/25/03</u>

SAMPLE DELIVERY GROUP H2195

Test I Matrix SOLID

SDG 7508

Contact Melissa C. Mannion

LAB METHOD SUMMARY

IODINE 129 IN SOIL GAMMA SPECTROSCOPY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2195</u>

RESULTS

LAB RAW SUF-

Iodine 129 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Preparation batch 7060-157 U R305021-01 7508-001 816W84 R305021-02 U 7508-002 B16W85 R305021-03 7508-003 B16W86 U R305021-04 7508-004 B16W87 U R305021-05 7508-005 B16W88 U R305021-06 7508-006 LCS (QC ID=44724) ok 7508-007 BLK (QC ID=44725) U R305021-07 R305021-08 7508-008 Duplicate (R305021-04) _

Nominal values and limits from method

RDLs (pCi/g)

2.0

200-PW-2/200-PW-4 OU-Borehole Soil

METHOD PERFORMANCE

LAB SAMPLE ID		SUF- FIX		SAMPLE	ID	MDA pCi/s	ALIQ 9	PREP		YIELD %	EFF %	COUNT	 *		PREPARED	ANAL- YZED	DETECTOR
Preparation	batcl	n 706	0-157	2σ p	rep error	10.0 %	Reference	Lab	Notebool	7060	pg.	157					
R305021-01			B16W84			1.3	1.01			44		1349		44	06/10/03	06/13	XSPEC-004
R305021-02			B16W85			1.2	1.00			46		1446		45	06/10/03	06/14	XSPEC-004
R305021-03			B16W86			1.3	1.00			47		1006		41	06/10/03	06/15	XSPEC-004
R305021-04			B16W87			1.7	1.02			48		603		41	06/10/03	06/16	XSPEC-004
R305021-05			B16W88			1.8	1.00			38		1002		40	06/10/03	06/16	XSPEC-004
R305021-06			LCS (Q	C ID=44	724)	1.0	1.00			86		1801			06/10/03	06/17	XSPEC-004
R305021-07			BLK (Q	C ID=44	725)	0.58	1.00			91		859			06/10/03	06/18	XSPEC-004
R305021-08			•	ate (R3 C ID=44	05021-04) 726)	1.4	1.02			47		657		44	06/10/03	06/19	XSPEC-004
Nominal val	Jes ar	nd ti	mits fr	om meth	od	2.0	1.00			20-10	5	300		180			

PROCEDURES	REFERENCE	I 129_SEP_LEPS_GS
	CP-024	Iodine-129, Sample Dissolution, rev 3
	CP-530	Iodine-129 Purification, rev 0

AVERAGES ± 2 SD MDA 1.3 ± 0.77
FOR 8 SAMPLES YIELD 56 ± 41

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SAMPLE DELIVERY GROUP H2195

Test	<u>c</u>	Mat	trix	< <u>\$</u>	OL I	D	_
SDG	<u>7508</u>						
Contact	Melis	sa	c.	Ma	ınni	on	

LAB METHOD SUMMARY

CARBON 14 IN SOIL LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H2195

RESULTS

LAB RAW SUF-

SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Carbon 14 Preparation batch 7060-157 R305021-01 7508-001 B16W84 U R305021-02 7508-002 B16W85 u R305021-03 7508-003 B16W86 U U R305021-04 7508-004 B16W87 R305021-05 7508-005 B16W88 U 7508-006 LCS (QC ID=44724) R305021-06 ok R305021-07 7508-007 BLK (QC ID=44725) 7508-008 Duplicate (R305021-04) R305021-08 U

Nominal values and limits from method

RDLs (pCi/g) 50

200-PW-2/200-PW-4 OU-Borehole Soil

METHOD PERFORMANCE

SAMPLE ID	RAW TEST		CLIENT	SAMPLE	E ID		MDA pCi/s	ALIQ g g	PREF FAC	DILU-	YIELD %	EFF %		 DRIFT KeV		PREPARED	ANAL - YZED	DETECTOR
Preparation	batc	706	0-157	2 <i>o</i> p	огер	еггог	10.0 %	Reference	Lab	Notebool	c 7060	pg.	157	•				
R305021-01			B16W84				2.9	0.348			100		100		44	06/12/03	06/13	LSC-006
R305021-02			B16W85				3.1	0.322			100		100		44	06/12/03	06/13	LSC-006
R305021-03			B16W86				2.6	0.378			100		100		39	06/12/03	06/13	LSC-006
R305021-04			B16W87				2.9	0.338			100		100		38	06/12/03	06/13	LSC-006
R305021-05			B16W88				2.6	0.376			100		100		37	06/12/03	06/13	LSC-006
R305021-06			LCS (Q	C ID=44	724)	4.5	0.322			100		46			06/12/03	06/13	LSC-006
R305021-07			BLK (Q	C ID=44	725)	3.1	0.322			100		100			06/12/03	06/13	LSC-006
R305021-08			Duplica (Q	ate (R3 C ID=44			3.0	0.326			100		100		38	06/12/03	06/13	LSC-006
Nominal val	ues ai	nd li	mits fr	om meth	od		50	0.322					50		180			

PROCEDURES REFERENCE C14_COX_LSC

CP-251 Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD MDA 3.1 ± 1.2 FOR 8 SAMPLES YIELD 100 ± 0

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SAMPLE DELIVERY GROUP H2195

Test H Matrix SOLID
SDG 7508
Contact Melissa C. Mannion

LAB METHOD SUMMARY TRITIUM IN SOIL LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2195

RESULTS

RAW SUF-LAB SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Tritium Preparation batch 7060-157 175 R305021-01 7508-001 B16W84 R305021-02 7508-002 225 B16W85 R305021-03 7508-003 B16W86 83.2 R305021-04 7508-004 B16W87 79.6 R305021-05 7508-005 B16W88 44.0 R305021-06 7508-006 LCS (QC ID=44724) ok 7508-007 8LK (QC ID=44725) U R305021-07 R305021-08 7508-008 Duplicate (R305021-04) ok Spike (R305021-04) R305021-09 7508-009 ok X Nominal values and limits from method RDLs (pCi/g) 400

METHOD PERFORMANCE

200-PW-2/200-PW-4 OU-Borehole Soil

	SUF- FIX CLIENT	SAMPLE ID	MDA pCi/g	AL IQ	PREP FAC		YIELD %	EFF %	COUNT min			PREPARED	ANAL- YZED	DETECTO
Preparation batc	n 7060-157	2σ prep error	10.0 %	- Reference	Lab	Notebool	k 7060	pg.	157			<u> </u>		
R305021-01	B16W84		0.26	20.7			51		52		45	06/13/03	06/14	LSC-005
R305021-02	B16W85		0.31	21.2			50		43		46	06/13/03	06/15	LSC-005
R305021-03	B16W86		0.17	21.0			51		103		41	06/13/03	06/15	LSC-005
R305021-04	B16W87		0.17	21.5			53		106		40	06/13/03	06/15	LSC-005
R305021-05	B16W88		0.16	21.4			51		120		39	06/13/03	06/15	LSC-005
R305021-06	LCS (QC	: 1D=44724)	0.27	20.0			33		120			06/13/03	06/15	LSC-005
R305021-07	BLK (QC	ID=44725)	0.28	20.0			33		120			06/13/03	06/15	LSC-005
R305021-08	•	ite (R305021-04) C ID=44726)	0.18	21.3			50		104		40	06/13/03	06/15	L\$C-005
R305021-09	•	(R305021-04) (ID=44727)	0.25	21.7			35		101		40	06/13/03	06/15	LSC-005
Nominal values a	nd limits fro	m method	400	20.0			·· -		25	 •	180			

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>06/25/03</u>

SAMPLE DELIVERY GROUP H2195

Test H Matrix SOLID SDG <u>7508</u> Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont. TRITIUM IN SOIL LIQUID SCINTILLATION COUNTING

Client <u>Hanford</u> Contract No. 630 Contract SDG H2195

PROCEDURES REFERENCE 906.0_H3_LSC CP-216 Tritium in Solid Samples by Azeotropic Distillation, rev 6

AVERAGES ± 2 SD MDA 0.23 ± 0.11 FOR 9 SAMPLES YIELD 45 ± 17

METHOD SUMMARIES Page 12 SUMMARY DATA SECTION Page 29

SAMPLE DELIVERY GROUP H2195

Test NI L Matrix SOLID SDG <u>7508</u>

Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOIL LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG_H2195

RESULTS

RAW SUF-LAB

SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID

Nickel 63

Preparation batc	h 7060-157			
R305021-01	7508-001	B16W84	U	
R305021-02	7508-002	B16W85	U	
R305021-03	7508-003	B16W86	U	
R305021-04	7508-004	B16W87	U	
R305021-05	7508-005	B16W88	บ	
R305021-06	7508-006	LCS (QC ID=44724)	ok	
R305021-07	7508-007	BLK (QC ID=44725)	u	
R305021-08	7508-008	Duplicate (R305021-04)	-	U

Nominal values and limits from method

RDLs (pCi/g)

30

200-PW-2/200-PW-4 OU-Borehole Soil

METHOD PERFORMANCE

LAB	RAW	-		_		MDA	ALIQ	PREP				_					ANAL-	
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE	ID	pCi/g	9 g	FAC	TION	*	X	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation	batch	7060)-1 5 7	2σ pr	ep error	10.0 %	Reference	Lab	Notebool	k 7060	pg.	157						
R305021-01			B16W84			2.5	0.500			86		100			37	06/06/03	06/06	LSC-006
R305021-02			B16W85			2.4	0.500			88		100			37	06/06/03	06/06	LSC-006
R305021-03			B16W86			2.4	0.500			90		100			32	06/06/03	06/06	LSC-006
R305021-04			B16W87			2.6	0.500			83		100			31	06/06/03	06/06	LSC-006
R305021-05			B16W88			2.4	0.500			86		100			31	06/06/03	06/07	LSC-006
R305021-06			LCS (Q	C ID=447	24)	2.1	0.500			97		100				06/06/03	06/07	LSC-006
R305021-07			BLK (Q	C ID=447	25)	2.2	0.500			97		100				06/06/03	06/07	LSC-006
R305021-08			Duplica	ate (R30	021-04)	2.4	0.500			88		100			32	06/06/03	06/07	LSC-006
			(00	C ID=4472	26)													
Nominal val	ues an	d lin	nits fr	om method	<u> </u>	30	0.500			30-10	5	50			180			

METHOD SUMMARIES Page 13 SUMMARY DATA SECTION Page 30

SAMPLE DELIVERY GROUP H2195

Test NI L Matrix SOLID

SDG 7508

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H2195

PROCEDURES REFERENCE NI63_LSC

CP-060 Soil Preparation, rev 4

CP-071 Soil Dissolution, > 1.0g Aliquot, rev 2

CP-431 Nickel-63 Purification, rev 5

AVERAGES ± 2 SD MDA 2.4 ± 0.32 FOR 8 SAMPLES YIELD 89 ± 10

METHOD SUMMARIES
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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>06/25/03</u>

SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

REPORT GUIDE

Clie	ent	Hani	ford	
Contra	act	No.	630	
Case	no	SDG	H2195	

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford	
Contract	No. 630	
Case no	SDG H2195	

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SAMPLE DELIVERY GROUP H2195

SDG 7508 Contact Melissa C. Mannion

REPORT GUIDE

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Case no	SDG	H2195	

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

REPORT GUIDES

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SUMMARY DATA SECTION

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SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford	
Contract	No. 630	
Case no	SDG H2195	

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford	d	
Contract	No. 630	0	
Case no	SDG H2	195	

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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SAMPLE DELIVERY GROUP H2195

SDG 7508 Contact Melissa C. Mannion

GUIDE, cont.

Han	ford	
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SDG	H2195	
	No.	Hanford No. 630 SDG H2195

DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

REPORT GUIDE

Clie	ent	Hani	ford		
Contra	act	No.	630		
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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford	
	No. 630	
	SDG H2195	

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:
 - 1. A fixed percentage specified in the protocol.

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SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hani	ford	
Contract	Nо.	630	
Case no	SDG	H2195	

DUPLICATE

- 2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.
- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanf	ord	
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Case no	SDG	H2195	

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 - 1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits

REPORT GUIDES

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SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

GUIDE, cont.

Client	<u>Hanford</u>
Contract	No. 630
Case no	SDG H2195

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	
	SDG H2195

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanf	ord	 	
Contract	No.	630	 	
Case no	SDG	H2195	 	

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Prepareation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

REPORT GUIDES

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SUMMARY DATA SECTION

Page 44

SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford	
Contract	No. 630	
Case no	SDG H2195	

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES
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SUMMARY DATA SECTION
Page 45

SAMPLE DELIVERY GROUP H2195

SDG 7508
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hani	ford	
Contract	No.	630	
Case no	SDG	H2195	

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

REPORT GUIDES
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SUMMARY DATA SECTION
Page 46

FH-Central Platea	u Project	C	HAIN OF CUS	TODY/S	AMPL	E ANAL	YSIS	REQUEST		F03	-006-67	Page 1	of <u>1</u>
Collector Johansen/Pope/Pfister		LĊ	any Contact Hulstrom	Telephor 373-3	928			Project Coordina TRENT, SJ	tor F	rice Code	8N	-	rnaround
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling	Sampl 216	ing Location -A-37 (C4106); (72.5'-7	5) SD 4	42195	<u>5(750</u>	8)	SAF No. F03-006	A	ir Quality		45 J	Days
Ice Chest No. ERC 9	9-010		Logbook No. F-N-3361		COA 117504E	S10		Method of Shipmo Federal Express	ent				
Shipped To EBERLINE SERVICES (Form	nerly TMA)	Offsit	e Property No.	P030	<u> </u>	49		Bill of Lading/Ai	r Bill No	SEE	OSP		
POSSIBLE SAMPLE HAZAI	hira		Preservation	Cool 4C	Cool 4C	Cool 4	Non	ne None					
Special Handling and/or St	BIGN PO		Type of Container	aG	₽G	aG	aG						
] -) o na		No. of Container(s)		1	4 1	1						<u> </u>
			Volume	120mL	60mI/	120mL	60m	ıL 60mL					
	SAMPLE ANALY	YSIS		Chromium Hex - 7196	NO2/NO3 353.2	Oil & Grease - 413.1	See item Spec Instruct	أأهأ					
				A SA	1221					Tiest	>		
Sample No.	Matrix *	Sample Date							A				
B16W84	SOIL	4-30-0	3 0900	/	<u> </u>		-7			Blle	100	<u> </u>	
		<u> </u>			 	+	┢┈			+			
					 				-	1	<u> </u>		-
					† –	- 	1						
CHAIN OF POSSESSIO	Date/Time 1430 Date/Time 1430	Received By/Sto	red in FRA 1 Reference 4- red in 1	Date/Time 30-03 4 Date/Time 14	30 mg	e rt both kerosen	s to achie e and die: ; Strontiu	eve a detection limit of 5 sel range compounds from m-89,90 — Total Sr., Iso	m WIPH	I-D analysis.	3pe		Matrix * S-Soil SE-Sediment SO-Solid SIn-Sludge W = Water O-Oil
Relinquished By/Removed From Relinquished By/Removed From E/	Date/Time 1000 4.30 53 C Date/Time 1000	Received By/Sto	wed in	5.1 o	3								A=Air D3=Drum Solids DL=Drum Liquids T=Tissue Wi=Wipe L=Liquid VerVenetation
Relinquished By/Removed From	Daie Time	Received By/Sto		Date/Time	(00)								X=Other
Relinquished By/Removed From	Date/Time	Received By/Sto	ored In	Date/Time									
LABORATORY Received By SECTION	,			T	itie						I	Pate/Time	
FINAL SAMPLE Disposal Me	ethod					Disp	osed By					Date/Time	

FH-Central Platea	u Project	CH	IAIN OF CUST	ODY/S	AMPLI	EANALY	YSIS	REQUEST		F03-	-006-68	Page 1 c	of <u>1</u>
Collector Johansen/Pope/Pfister			ny Contact Iulstrom	Telephor 373-39				Project Coordina TRENT, SJ	tor	Price Code	8N	Data Turi	ŀ
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling	Sampli 216-	ng Location A-37 (C4106); (97.5'-10	₀₎ 504	42195	(750	8)	SAF No. F03-006	1	Air Quality		45 1	Days
Ice Chest No. ER	2010		.ogbook No. -N-3361		COA 117504ES	310		Method of Shipm Federal Expres					
Shipped To EBERLINE SERVICES (For	merly TMA)	Offsite	Property No.	A03	0 21	£ 9		Bill of Lading/A	ir Bill N	10. Se	E OS	PC	
POSSIBLE SAMPLE HAZA	- 					1						<u> </u>	
Radiosetro			Preservation	Cool 4C	Cool 4C	Cool 4C	Non	e None					
	BIL WEN		Type of Container	aG	аG	16	aG	aG a					
Special Handling and/or S	Torage		No. of Container(s)	1	1	1	1	1					
			Volume	120mL	60mL	120mL	60n	ıL 60mL					
				Chromium Hex - 7196	NO2/NO3 -	Oil & Grease - 413.1	See item Spec						
	SAMPLE ANALYS	ıs			163	1.2	Instruc						
ļ				15	Jalan								
				X						TILT);	FOR ELIGIBLE OF STREET	on a market of a MacRet of
Sample No.	Matrix *	Sample Date	Sample Time	10.2		4 15 15 15 15					49.5		despetativ
B16W85	SOIL 2	1-30-03	1238	<u>/</u>			_+	- 1		Brow	<u> </u>		ļ
				ļ		<u> </u>	ļ				 		<u> </u>
						<u> </u>	ļ				<u> </u>	ļ.,	
					<u> </u>								
			<u> </u>	<u> </u>		Ш					L	<u> </u>	N 6 4 1 1 1 1
CHAIN OF POSSESSIO		Sign/Prin		ate/Time		CLAL INSTE	to achie	eue a detection limit of	50.0 pCi/	g for Carbon-14.	** The labor	tory is 10	Matrix *
Relinquished By/Rerhoved From			R.A. W.	35.63 14		ert both kerosene	कार्य पॉट	set range compounds	rom WTP	H-D analysis.	5/2 4	1/22/03	S=Soil SE=Sediment SO=Solid
	Date/Time ###	Received By/Stor	ed in D	ate/Time (Lf	3 co (1)	Technetium-99; Nickel-63; Ner		m-89,90 — Total Sr, Is	otopic Th	orium (Thorium-2	32); Carbon-	14; Iodine-	SI=Sindige W = Water
Relinquished By/Removed From Relinquished By/Removed From	Y-36 €3 Date/Time	Received By/Stor	728 4.30	ate/Time /		, Mickel-05, Mej	Amiliar.	231					O=Oil A≖Air
Reimquished By/Removed From	203 1008	VZ-A											DS=Drum Solids DL=Drum Liquids
Relinquished By/Removed From E RCROO R FINN	Ro Date/Time 1000	Received By/Sto	ed In D	ate/Time									T=Tissue WI=Wips L=Liquid
Relinquished By/Removed From	Date/Time	Received By/Sto	red In , D	So3 /									V=Vegetation X=Other
Reinquished By/Removed From	Date/Time	Received By/Sto		ate/Time	<u> </u>	•							
Reimquished By/Removed From								<u> </u>				·	<u>L</u>
LABORATORY Received B SECTION	у			Т	itle							Date/Time	
FINAL SAMPLE Disposal M DISPOSITION	fethod					Disp	osed By					Date/Time	

FH-Central Platea	u Project	C	HAIN OF CUST	ODY/S	AMPL	EANAL	YSIS	REQUEST		FO:	3-006-69	Page <u>l</u>	of <u>l</u>
Collector Johansen/Pope/Pfister			any Contact Hulstrom	Telephor 373-39				Project Coordin TRENT, SJ	ator	Price Code	8N	Data Tur	
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling	Samp 21(ling Location 5-A-37 (C4106); (147.5'-1	1507 HZ	195 (7508		SAF No. F03-006		Air Quality		45 I	Days ———
Ice Chest No.	01-019		Logbook No. IF-N-3361		COA 117504E	S10		Method of Ships Federal Expres					
Shipped To EBERLINE SERVICES (For	-	Offsit	te Property No.	8030	258	 >		Bill of Lading/A	ir Bill N	o. <u>s</u> £	EOS	PC	
POSSIBLE SAMPLE HAZA				Cool 4C	Cool 4C	Cool 4C	None	e None	_				
T. T.	RIGINDE		Preservation Type of Container	aG	aG	3g#	aG	aG					
Special Handling and/or S	torage	5.602	No. of Container(s)	1	1	1/1	1	1.		 -	 		
Special Handling and/or S	Vo va	•	Volume	120mL	60mL	120mL	60m	L 60mL					
	SAMPLE ANAL		<u> </u>	Chromium Hex - 7196	NO2/NO3-	Oil & Grease - 413.1	See item Speci Instructi	àť	·· <u>···</u>				
		6 1 75-	T 0	Na.							TICTO:		
Sample No. B16W86	Matrix * SOIL	Sample Date	Sample Time				X				Bu a vo	3 B161	TO _A
				 	 	 	 				James .	العارع	
				 	<u> </u>	_	<u> </u>	· .			 		
CHAIN OF POSSESSIO	IN I	Sign/Pris	nt Names	<u> </u>	l cor	CIAL INSTI	L CTY	DNC			<u> </u>	<u> </u>	Matrix *
Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Received By/Stored In Date/Time Received By/Stored In Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Relinquished By/Removed From Date/Time Received By/Stored In Received By/Stored In Date/Time Received By/Stored In Date/Time Received By/Stored In Security By/Stored In Date/Time Received By/Stored In Security By/Stored In Date/Time Received By/Stored In Security By/Stored In Date/Time Received By/Stored In Security By/Stored In Date/Time Received By/Stored In Date/Time Recei				ate/Time / 3 / 5 ate/Time // 6 - 6 ate/Time ate/Time ate/Time	(1) 3	The laboratory is at both kerosent both kerosent Technetium-99; Nickel-63; Nep Personnel not relinquish sar	s to achieve and dies Strontium Strontium-2 t availab mples fr	ve a detection limit o er range compounds n-89,90 — Total Sr; I 37	from WTP	H -D analysis: 🎤	gge 4	22/03	S-Soli SE-Sodiment SO-Solid SI-Shadge W = Water O-Oil A-Air DS-Drum Solids DL-Drum Liquids T=Tissue Wi-wipe L-Liquid V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By/St	ored In D	ate/Time									
LABORATORY Received By SECTION	y	<u> </u>	·	Tí	tie						I	Date/Time	
FINAL SAMPLE Disposal M DISPOSITION	ethod					Disp	osed By					Date/Time	

FH-Central Plateau Project	CF	IAIN OF CUST	ODY/S	AMPL	E ANALY	YSIS	REQUEST	F03	-006-70 Page	<u>l</u> of <u>l</u>
Collector Johansen/Pope/Pfister		ny Contact Iulstrom	Telephor 373-39				Project Coordinator TRENT, SJ	Price Code	014	ata Turnaround
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling	Sampli 216-	ng Location A-37 (C4106); (197.5'-2	000 H2	2195	(7508)	SAF No. F03-006	Air Quality		45 Days
Ice Chest No. FRC 01-021		ogbook No. F-N-3361		COA 1175041	ES10		Method of Shipment Federal Express	· 		
Shipped To EBERLINE SERVICES (Formerly TMA)	Offsite	Property No.	9030	25	Z		Bill of Lading/Air Bi	II No. SEE	OSPC	
POSSIBLE SAMPLE HAZARDS/REMARKS		Th	Cool 4C	Cool 40	Cool 4g	Non	e None			
Tie VD B16WDO		Preservation	aG	aG	AG	aG	aG			
Special Handling and/or Storage		Type of Container	 	1	1/	1				
Now		No. of Container(s)		<u></u>	1201				 	
		Volume	120mL	60mL	120mL	60m	L SOME			
			Chromium Hex - 7196	NO2 NO3	- Oil & Grease - 413.1	See item Speci				
SAMPLE ANALYSI	5			103		Instruct	ions.	:		
			1857	1412"		.		Tieto:		
Sample No. Matrix *	Sample Date	Sample Time								
B16W87 SOIL	5/6/03	0945				7	<	Bilows		
	<i>t</i> "									
						L				
	· 		ļ							
			<u>L</u>	<u></u>				l		
CHAIN OF POSSESSION Relimquished By/Removed From Date/Time	Sign/Print eccived By/Stor		ate/Time		ECIAL INSTR The laboratory is	to achie	ve a detection limit of 50.0	pCi/g for Carbon-14.	** The laboratory is	Matrix *
1Mobilition 1 5/6/03/100	REF LA		103 1100		po rt-both kerosene	and dies	sel range compounds from \	VTPH D analysis.	7 gr 4/22/	S=Soil SE=Sodiment SO=Solid
Relinquished By/Removed From Date/Time	Received By/Stor	ed In Da	ate/Time <i>JO O</i>	🝎] (t) Technetium-99; 9; Nickel-63; Nep		m-89,90 — Total Sr; Isotopi	c Thorium {Thorium-2	232}; Carbon-14; Iod	
Relinquished By/Removed From FOC Date/Time 1000	Received By/Stor		-703 ate/Time				-11-1-			O=Otl A=Air
V. GRO Refables 5-7.03	Fedt	` `			relinquish s	amples	from the 3728	-		DS=Drum Solids DL=Drum Liquids
Relinquished By/Retnoved From Date/Time	Received By/Stor	ed in S	ate/Time -03 [(0(3	Ref # 117	_on	17 10.5		,	T=Tissue Wi=Wipe L=Liquid
			ate/Time							V=Vegetation X=Other
Relinquished By/Removed From Date/Time	Received By/Stor	ed in D	ate/Time							
LABORATORY Received By SECTION			Ti	tle		·		<u></u>	Date/T	me
FINAL SAMPLE Disposal Method DISPOSITION				·	Dispo	sed By			Date/T	ime

FH-Central Plate	au Project	CH	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST #U.5-006-71 1-46- 1							·· -				
Collector Johansen/Pope/Pfister			y Contact ulstrom	Telephon 373-39	ie No. 128			Project Coording TRENT, SJ	ator	Price Code	8N		Data Turnaround	
Project Designation 200-PW-2/200-PW-4 OU - B	orehole Soil Sampling	Samplin 216-A	g Location 1-37 (C4106); (237.5'-2	40) H2	195 (7508	<u> </u>	SAF No. F03-006		Air Quality		45]	Days	
Ice Chest No. SML -	600		gbook No. N-3361		COA 117504E	310		Method of Ships Federal Expres						
Shipped To EBERLINE SERVICES (For	merly TMA)	Offsite 1	Property No. AC	302	54			Bill of Lading/	Air Bill N	lo.				
POSSIBLE SAMPLE HAZA	RDS/REMARKS		Preservation	Cool 4C	Cool 4C	Cool 4C	Not	e None						
Special Handling and/or S	Storage	-	Type of Container	aG 1	aG }	G	aC							
		-	No. of Container(s) Volume	120mL	60mL	120mL	60m							
	SAMPLE ANALYS	sis		Chromium Hex - 7196	NO2/NO3 253,2 V	Oil & Gresse - 413.1	See item Spec Instruc	ial		Tar				
Sample No.	Matrix *	Sample Date	Sample Time							Tier				
B16W88	SOIL	5-7-03	1050	/			X	X		3160	2091	· · · · · · · · · · · · · · · · · · ·		
						<u> </u>								
				<u> </u>	-									
CHAIN OF POSSESSIC Relinquished By/Removed-From Relinquished By/Remoyed From		Sign/Print Received By/Store SJBACCA Received By/Store	Male 5	ate/Time	WO TER	<u>at both kerosen</u>	s to achie	ONS ve a detection limit of transportation of transportation of transportation of the compounds on 89,90 — Total Sr. 1	ion Wir	H-D analysis.	15- 41	122/03	Matrix * 5-Soil 50-Soil 50-Soil 51-Shates	
SJOACE MDL. Relinquished By/Removed From 3728 Ref 1B	5703 1440 Date/Time 5/8/03 0830 Date/Time	REFIE Received By/Store Received By/Store	372 \$ 570 d In Di	14 U ale/Time 5/8/3 > ate/Time	129 28 3 P	; Nickel-63; Ner ersonnel not a linquish sam ef # <u>/ B</u> on	ptunium-/ ivailabl ples fro	e to m the 3728	•	•	,,	,	W = Water C=Oil A=Air DS=Drum Solids DI.=Drum Liquids T=Ylame WI=Wipe	
Relinquished By/Removed From Relinquished By/Removed From	Date/Time	Received By/Store	5-9-	ate/Time									L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From LABORATORY Received B]		Tit	le l	 		<u> </u>				Date/Time	<u></u>	
SECTION FINAL SAMPLE Disposal M DISPOSITION	fethod					Dispo	osed By				<u>.</u>	Date/Time		

EBERLINE.

ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

Client:	FLR	Date/Time received 1000 5.5 - C3										
CoC N	o. FU3-06-67,68											
Contail	ner I.D. No. <u>EQC-9 8- ULORequested</u>	TAT (Days) LS P.O. Received Yes [] No []										
	INSPE	ECTION										
1.	Custody seals on shipping container intact	? Yes[No[] N/A[]										
2.	Custody seals on shipping container dated	& signed? Yes [No [] N/A []										
3.	Custody seals on sample containers intact	7 Yes[1 No[] N/A[]										
4.	Custody seals on sample containers dated	& signed? Yes [No [] N/A []										
5.	Packing material is:	Wet[] Dry[[]										
6.	Number of samples in shipping container:											
7.	Number of containers per sample:	· · · · · · · · · · · · · · · · · · ·										
8.	Paperwork agrees with samples?	Yes [No []										
9.	Samples have: Tape [] Hazard labels [Rad labels [] Appropriate sample labels []										
10.												
11.	Samples are: Preserved [] Not preserv	ed [Preservative										
12.	Describe any anomalies:											
j												
13.		es[] No[] Date										
14.	Received by											
Custom	er Sample	Customer Sample										
i	No. cpm mR/hr wipe	No. cpm mR/hr wipe										
B164	V84 C40 '072											
BIGU	vec 240 .018											
lon Chai	mber Ser. No.	Calibration date 3-20 -03										
	,	_										
Alpha M	leter Ser. No.	Calibration date										
Beta/Ga	mma Meter Ser. No	Calibration date										



ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

Client:	Date/Time received 1100 5-803
COC NO. FU3-006-69	
68601-010	T (Days) L(C P.O. Received Yes [] No []
iNSPEC 1. Custody seals on shipping container intact?	Yes [U No [] N/A []
Custody seals on shipping container dated &	71
3. Custody seals on sample containers intact?	Yes [No [] N/A [AD
4. Custody seals on sample containers dated &	
5. Packing material is:	, Wet [] Dry [2]
6. Number of samples in shipping container:	
7. Number of containers per sample:	(Or see CoC)
8. Paperwork agrees with samples?	Yes [L] No []
9. Samples have: Tape [] Hazard labels []	Rad labels [CAppropriate sample labels [2
10. Samples are: In good condition [] Leak	ing[] Broken Container[] Missing[]
11. Samples are: Preserved [] Not preserved	[Preservative
12. Describe any anomalies:	
13. Was P.M. notified of any anomalies? Yes	
14. Received by And G	
	Customer Sample
No. cpm mR/hr wipe	No. epm mR/hr wipe
B16W8 CYO	
Ion Chamber Ser. No.	Calibration date
Alpha Meter Ser. No.	Calibration date
Beta/Gamma Meter Ser. No. 99574	Calibration date 12-12-02

EBERLINE

Form SCP-01:2, 02-11-03

ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

Client: FLR				Date/T	_ Date/Time received		1100 5-8		5-8	-03		
Coc No. F03-006-70												
	ner I.D. No.			Requested	TAT (Days)	45	P.O.	Receive	d Ye	s[]No	· []	
					ECTION						•	
1.	Custody s	eals on shi	pping cont	ainer intac	t?	Yes [V	1	No []	N/A	f 1	
2.	Custody s	ealș on shi	pping cont	ainer dated	l & signed?	Yes [1	No []	N/A	[]	
3.				iners intact		Yes [ا		No []	N/A	[]	
4.	Custody s	eals on sar	& signed?	Yes [(1	No [1	N/A	[]			
Б.	Packing m	aterial is:	ì	Wet []	Dry IL						
6.	Number of samples in shipping container:											
7.	Number of	_2_	(Or see	CoC)						
8.	Paperwork		Yes [4	No []		_				
9.	Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels []											
10.	Samples are: In good condition [] Leaking [] Broken Container [] Missing []											
11.	Samples are: Preserved [] Not preserved [V Preservative											
12.	Describe any anomalies:											
1												
1		···	. <u>.</u>		·							
13.	Was P.M. notified of any anomalies? Yes [] No [] Date											
14.	Received t	oy <u>lu</u>	<u> </u>		Date:	5.8-	73	_ Time:	- [[
Custome	er Sample				Custome	r Sampl	e					
;	No.	cpm	mR/hr	wipe	N	٥.	(cbù	mR/	hr v	vipe	
B16	B16W87 240											
					·	·						
				·								
								 -				
		·		 	· · · · · · · · · · · · · · · · · · ·				 			
lon Chamber Ser. No.						Calibration date						
Alpha Meter Ser. No.					(Calibration date						
Beta/Gamma Meter Ser. No. 99574						Calibration date Calibration date Calibration date						

EBERLINE.

ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

Client:	FL	R			Date/T	ime received	1100	5-9	-03		
coc No. FU3-006-71											
				20mm-4-11	T A 40 Jan	ر اللي) Bacaivad	Vantik			
Container I.D. No. SML-660 Requested TAT (Days) 45 P.O. Received Yes [] No [] INSPECTION											
1.	Custody se	ale on ehi	nnina cont			Yes []	No[]	N/A	A []		
2.	•					Yes []	No[]	-	_ ,		
3.	Custody sea					Yes [U	No []	,.			
4.	•		·			Yes [U					
5.	Packing ma		•		l gilledi	Wet[]	Dry I L	_	•		
6.	Number of samples in shipping container:										
7.	Number of	container	s per sampi	e:	<u></u>	(Or see CoC	·	_)			
8.	Paperwork	agrees wi	th samples	7		Yes IL	No []				
9.	Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels										
10.	Samples are: In good condition [Leaking [] Broken Container [] Missing []										
11.	Samples are	e: Preserv	ed [] ^	lot preserv	ed [LIPI	reservative					
12.	Describe an	y anomali	es:	 ,	 				 -		
			 _								
				<u>. </u>				·			
13.	Was P.M. notified of any anomalies? Yes [] No [] Date Received by										
14.	Received by	/_/lm			Date:	3. (-3	Time:	1100	لحد		
	er Sample	anm		!	Custome			P /	!		
·	No.	cpm	mR/hr	wipe ————	N:	o. 	cpm r	nR/hr	wipe ———		
					·						
	<u> </u>								 ,		
<u> </u>	· •										
	 ·										
··											
Ion Chamber Ser. No.					(Calibration date					
Alpha Meter Ser. No.					(Calibration date					
Beta/Gamma Meter Ser. No. 99574						Calibration date 12-12-13					